

# SEQUENCE LISTING

<110> Evans, Glen A.  
Jewell, Sally  
Ware, Mark

<120> Enhanced Variants of Erythropoietin and  
Methods of Use

<130> 66663-066

<150> US 10/291,847

<151> 2002-11-08

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Met Asp Ile Ala Pro Pro Arg Leu  
1 5

att tgc gac agc agg gtg cta gaa aga tac ctg ctc gaa gcg aaa gag 162  
Ile Cys Asp Ser Arg Val Leu Glu Arg Tyr Leu Leu Glu Ala Lys Glu  
10 15 20

gct gaa aat atc acc aca ggc tgt gca gaa cat tgc tca ctg aac gag 210  
Ala Glu Asn Ile Thr Thr Gly Cys Ala Glu His Cys Ser Leu Asn Glu  
25 30 35 40

aat att act gta ccg gat acg aaa gtc aac ttt tat gcc tgg aaa cga 258  
Asn Ile Thr Val Pro Asp Thr Lys Val Asn Phe Tyr Ala Trp Lys Arg  
45 50 55

atg gaa gtt gga caa cag gcg gtg gaa gtt tgg cag ggg ctt gcc ctg 306  
Met Glu Val Gly Gln Gln Ala Val Glu Val Trp Gln Gly Leu Ala Leu  
60 65 70

ttg tcg gag gca gtc ctg cgg ggt caa act tta ctg gta aat tcc agt 354  
Leu Ser Glu Ala Val Leu Arg Gly Gln Thr Leu Leu Val Asn Ser Ser  
75 80 85

cag cct tgg gaa cca tta cag ttg cac gtg gat aag gcg gtt tct ggc 402

Gln Pro Trp Glu Pro Leu Gln Leu His Val Asp Lys Ala Val Ser Gly  
 90 95 100  
 ctg cgc agc ctt acc acg ctg ctc cgt gca ctg ggt gcc caa aaa gaa 450  
 Leu Arg Ser Leu Thr Thr Leu Leu Arg Ala Leu Gly Ala Gln Lys Glu  
 105 110 115 120  
 gct atc tcg ccg cct gac gcg gcc tca gca gcg ccg tta cgc act att 498  
 Ala Ile Ser Pro Pro Asp Ala Ala Ser Ala Ala Pro Leu Arg Thr Ile  
 125 130 135  
 aca gcc gat acc ttc cgt aaa ctg ttt cgc gtc tac tcc aac ttc ttg 546  
 Thr Ala Asp Thr Phe Arg Lys Leu Phe Arg Val Tyr Ser Asn Phe Leu  
 140 145 150  
 cgt ggc aaa ctg aaa ctt tat acg ggt gag gct tgt cgc tga 588  
 Arg Gly Lys Leu Lys Leu Tyr Thr Gly Glu Ala Cys Arg \*  
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 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
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 Gly Glu Ala Cys Arg  
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<221> CDS

<222> (1)...(498)

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| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |
| 1 5 10 15   |     |
| aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
| gca gaa tat tgc tca ctg aac gag aat att act gta ccg gat acg aaa | 144 |
| Ala Glu Tyr Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gtg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Val Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg tcg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Ser Pro Asp Ala Ala |     |
| 115 120 125   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
| ttt cgc gtc tac gcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg | 480 |
| Phe Arg Val Tyr Ala Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |
| 145 150 155 160   |     |
| ggt gag gct tgt cgc tga   | 498 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

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<212> PRT

<213> Homo sapiens

<400> 4

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |  |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |  |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Asn | Ile | Thr | Thr | Gly | Cys |  |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |  |
| Ala | Glu | Tyr | Cys | Ser | Leu | Asn | Glu | Asn | Ile | Thr | Val | Pro | Asp | Thr | Lys |  |
|     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |  |
| Val | Asn | Phe | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |  |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |  |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |  |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |  |
| Gln | Thr | Leu | Leu | Val | Asn | Ser | Ser | Gln | Pro | Trp | Glu | Pro | Leu | Gln | Leu |  |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |  |
| His | Val | Asp | Lys | Val | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |  |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |  |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Ser | Pro | Asp | Ala | Ala |  |
|     |     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |  |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |  |
|     |     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |  |
| Phe | Arg | Val | Tyr | Ala | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Leu | Tyr | Thr |  |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |  |
| Gly | Glu | Ala | Cys | Arg |     |     |     |     |     |     |     |     |     |     |     |  |
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<221> CDS

<222> (1)...(498)

<400> 5

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| atg | gat | atc | gcc | ccg | ccc | cgt | ctg | att | tgc | gac | agc | agg | gtg | cta | gaa | 48  |
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |     |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |     |
| aga | tac | ctg | ctc | gaa | gcg | aaa | gag | gct | gaa | act | atc | acc | aca | ggc | tgt | 96  |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Thr | Ile | Thr | Thr | Gly | Cys |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |     |
| gta | gaa | gat | tgc | tca | ctg | aac | gag | aat | att | act | gta | ccg | gat | acg | aaa | 144 |
| Val | Glu | Asp | Cys | Ser | Leu | Asn | Glu | Asn | Ile | Thr | Val | Pro | Asp | Thr | Lys |     |
|     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| gtc | aac | ttt | tat | gcc | cgg | aaa | cga | atg | gaa | gtt | gga | caa | cag | gcg | gtg | 192 |
| Val | Asn | Phe | Tyr | Ala | Arg | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |     |
|     |     |     | 50  |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| gaa | att | tgg | cag | ggg | ctt | gcc | ctg | ttg | tcg | gag | gca | gtc | ctg | cgg | ggg | 240 |
| Glu | Ile | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |     |



| 65  | 70  | 75  | 80  |     |
|---|-----|-----|-----|-----|
| caa act tta ctg gta att tcc agt cag cct tgg gaa cca tta cag ttg |     |     |     | 288 |
| Gln Thr Leu Leu Val Ile Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |     |     |     |
|   | 85  | 90  | 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc |     |     |     | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |     |     |     |
|   | 100 | 105 | 110 |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc |     |     |     | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |     |     |     |
|   | 115 | 120 | 125 |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg |     |     |     | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |     |     |     |
|   | 130 | 135 | 140 |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg |     |     |     | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |     |     |     |
|   | 145 | 150 | 155 | 160 |
| ggt gag gct tgt cgc tga   |     |     |     | 498 |
| Gly Glu Ala Cys Arg *   |     |     |     |     |
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<400> 6

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| 1   | 5   | 10  | 15  |  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Thr Ile Thr Thr Gly Cys |     |     |     |  |
|   | 20  | 25  | 30  |  |
| Val Glu Asp Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |     |     |  |
|   | 35  | 40  | 45  |  |
| Val Asn Phe Tyr Ala Arg Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |     |     |  |
|   | 50  | 55  | 60  |  |
| Glu Ile Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |     |     |  |
| 65  | 70  | 75  | 80  |  |
| Gln Thr Leu Leu Val Ile Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |     |     |  |
|   | 85  | 90  | 95  |  |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |     |     |  |
|   | 100 | 105 | 110 |  |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |     |     |  |
|   | 115 | 120 | 125 |  |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |     |     |  |
|   | 130 | 135 | 140 |  |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |     |     |  |
| 145   | 150 | 155 | 160 |  |
| Gly Glu Ala Cys Arg   |     |     |     |  |
|   | 165 |     |     |  |

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 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ser Ile Thr Thr Gly Cys  
 20 25 30  
 gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa 144  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 gaa gtt tgg cag ggg ctt gcc ctg ttg tgc gag gca gtc ctg cgg ggt 240  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 caa act tta ctg gta agt tcc agt cag tct tgg gaa cca tta cag ttg 288  
 Gln Thr Leu Leu Val Ser Ser Ser Gln Ser Trp Glu Pro Leu Gln Leu  
 85 90 95  
 cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc 336  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 cgt gca ctg ggt gcc caa aaa gaa gct atc tgc ccg cct gac gcg gcc 384  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg 432  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa gtt tat acg 480  
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 Gly Glu Ala Cys Arg \*  
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 35 40 45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Ser Ser Ser Gln Ser Trp Glu Pro Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Val Tyr Thr  
 145 150 155 160  
 Gly Glu Ala Cys Arg  
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<220>  
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 <222> (1)...(498)

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 aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt 96  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa 144  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 gtc aac att tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Val | Asn | Ile | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |     |  |
| 50  |     |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| gaa | gtt | tgg | cag | ggg | ctt | gcc | ctg | ttg | tcg | gag | gca | gtc | ctg | cgg | ggg | 240 |  |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |     |  |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| caa | act | tta | ctg | gta | att | tcc | agt | cag | cct | tgg | gaa | cta | tta | cag | ttg | 288 |  |
| Gln | Thr | Leu | Leu | Val | Ile | Ser | Ser | Gln | Pro | Trp | Glu | Leu | Leu | Gln | Leu |     |  |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| cac | gtg | gat | aag | gcg | gtt | tct | ggc | ctg | cgc | agc | ctt | acc | acg | ctg | ctc | 336 |  |
| His | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |     |  |
|     |     |     | 100 |     |     |     | 105 |     |     |     |     |     | 110 |     |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| cgt | gca | ctg | ggg | gcc | caa | aaa | gaa | gct | atc | tcg | ccg | cct | gac | gcg | gcc | 384 |  |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |     |  |
|     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| tca | gca | gcg | ccg | tta | cgc | act | att | aca | gcc | gat | acc | ttc | cgt | aaa | ctg | 432 |  |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |     |  |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| ttt | cgc | gtc | tac | tcc | aac | ttc | ttg | cgt | ggc | aaa | ctg | aaa | ctt | tat | acg | 480 |  |
| Phe | Arg | Val | Tyr | Ser | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Leu | Tyr | Thr |     |  |
| 145 |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     | 160 |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| ggg | gag | gct | tgt | cgc | tga |     |     |     |     |     |     |     |     |     |     | 498 |  |
| Gly | Glu | Ala | Cys | Arg | *   |     |     |     |     |     |     |     |     |     |     |     |  |
|     |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |     |     |  |

<210> 10  
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<400> 10

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
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| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |  |  |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |  |  |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Asn | Ile | Thr | Thr | Gly | Cys |  |  |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |     |  |  |
| Ala | Glu | His | Cys | Ser | Leu | Asn | Glu | Asn | Ile | Thr | Val | Pro | Asp | Thr | Lys |  |  |
|     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |  |  |
| Val | Asn | Ile | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |  |  |
| 50  |     |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |  |  |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |  |  |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |  |  |
| Gln | Thr | Leu | Leu | Val | Ile | Ser | Ser | Gln | Pro | Trp | Glu | Leu | Leu | Gln | Leu |  |  |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |  |  |
| His | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |  |  |
|     |     |     | 100 |     |     |     | 105 |     |     |     |     |     | 110 |     |     |  |  |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |  |  |
|     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |  |  |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |  |  |

|   |  |     |  |     |
|---|--|-----|--|-----|
| 130   |  | 135 |  | 140 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |  |     |  |     |
| 145   |  | 150 |  | 155 |
| Gly Glu Ala Cys Arg   |  |     |  | 160 |
|   |  | 165 |  |     |

<210> 11  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 11

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|---|-----|
| atg gat atc acc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa | 48  |
| Met Asp Ile Thr Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |
| 1 5 10 15   |     |
| aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
| gta gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa | 144 |
| Val Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta att tcc agt cag cct tgg gaa cta tta cag ttg | 288 |
| Gln Thr Leu Leu Val Ile Ser Ser Gln Pro Trp Glu Leu Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |

145                      150                      155                      160

ggt gag gct tgt cgc tga                      498

Gly Glu Ala Cys Arg \*

165

<210> 12

<211> 165

<212> PRT

<213> Homo sapiens

<400> 12

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asp | Ile | Thr | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Asn | Ile | Thr | Thr | Gly | Cys |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |     |
| Val | Glu | His | Cys | Ser | Leu | Asn | Glu | Asn | Ile | Thr | Val | Pro | Asp | Thr | Lys |
|     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Val | Asn | Phe | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Gln | Thr | Leu | Leu | Val | Ile | Ser | Ser | Gln | Pro | Trp | Glu | Leu | Leu | Gln | Leu |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| His | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Phe | Arg | Val | Tyr | Ser | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Leu | Tyr | Thr |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Gly | Glu | Ala | Cys | Arg |     |     |     |     |     |     |     |     |     |     |     |
|     |     |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |

<210> 13

<211> 498

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(498)

<400> 13

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| atg | gat | atc | gcc | ccg | ccc | cgt | ctg | att | tgc | gac | agc | agg | gtg | cta | gaa |
| 1   |     |     | 5   |     |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| aga | tac | ctg | ctc | gaa | gcg | aaa | gag | gct | gaa | aat | atc | acc | aca | ggc | tgt |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Asn | Ile | Thr | Thr | Gly | Cys |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |     |

48

96

|   |     |
|---|-----|
| gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa | 144 |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
| gtc aac ttt tat gct tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |
| 145 150 155 160   |     |
| ggg gag gct tgt cgc tga   | 498 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

<210> 14  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

|   |  |
|---|--|
| <400> 14  |  |
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |  |
| . 1 5 10 15   |  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |  |
| 20 25 30  |  |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |  |
| 35 40 45  |  |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |  |
| 50 55 60  |  |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |  |
| 65 70 75 80   |  |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |  |
| 85 90 95  |  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Phe | Arg | Val | Tyr | Ser | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Leu | Tyr | Thr |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Gly | Glu | Ala | Cys | Arg |     |     |     |     |     |     |     |     |     |     |     |
|     |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |     |

<210> 15  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

|   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| <400> 15  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| atg   | gat | atc | gcc | ccg | ccc | cgt | ctg | att | tgc | gac | agc | agg | gcg | cta | gaa | 48 |
| Met   | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Ala | Leu | Glu |    |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |    |
| aga tac ctg ctc gaa gcg aaa gag gct gaa att atc acc aca ggc tgt |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 96  |    |
| Arg   | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Ile | Ile | Thr | Thr | Gly | Cys |    |
|   |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |    |
| gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 144 |    |
| Ala   | Glu | His | Cys | Ser | Leu | Asn | Glu | Asn | Ile | Thr | Val | Pro | Asp | Thr | Lys |    |
|   |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |    |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 192 |    |
| Val   | Asn | Phe | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |    |
|   | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |    |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tgc gag gca gtc ctg cgg ggt |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 240 |    |
| Glu   | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |    |
|   | 65  |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |    |
| caa act tta ctg gta aat tcc agt cag cct agg gaa caa tta cag ttg |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 288 |    |
| Gln   | Thr | Leu | Leu | Val | Asn | Ser | Ser | Gln | Pro | Arg | Glu | Gln | Leu | Gln | Leu |    |
|   |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |    |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 336 |    |
| His   | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |    |
|   |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |    |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tgc ccg cct gac gcg gcc |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 384 |    |
| Arg   | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |    |
|   |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |    |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 432 |    |



Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140

ttt cgc gtc tac ccc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg 480  
 Phe Arg Val Tyr Pro Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160

ggt gag gct tgt cgc tga 498  
 Gly Glu Ala Cys Arg \*  
 165

<210> 16  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 16  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Ala Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ile Ile Thr Thr Gly Cys  
 20 25 30  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Arg Glu Gln Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 Phe Arg Val Tyr Pro Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160  
 Gly Glu Ala Cys Arg  
 165

<210> 17  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 17  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15

|   |     |
|---|-----|
| aga tac ctg ttc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Phe Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
| gca gaa cat tgc tca ctg aac gag att att act gta ccg gat ccg aaa | 144 |
| Ala Glu His Cys Ser Leu Asn Glu Ile Ile Thr Val Pro Asp Pro Lys |     |
| 35 40 45  |     |
| gtc aac ctt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Leu Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta att tcc agt cag cct tgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Ile Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |
| 145 150 155 160   |     |
| ggt gag gct tgt cgc tga   | 498 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

<210> 18  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 18  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Phe Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 Ala Glu His Cys Ser Leu Asn Glu Ile Ile Thr Val Pro Asp Pro Lys  
 35 40 45  
 Val Asn Leu Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val

|                     |                     |                         |     |    |  |
|---------------------|---------------------|-------------------------|-----|----|--|
| 50                  |                     | 55                      |     | 60 |  |
| Glu Val Trp Gln Gly | Leu Ala Leu Leu Ser | Glu Ala Val Leu Arg Gly |     |    |  |
| 65                  | 70                  | 75                      | 80  |    |  |
| Gln Thr Leu Leu Val | Ile Ser Ser Gln Pro | Trp Glu Pro Leu Gln Leu |     |    |  |
|                     | 85                  | 90                      | 95  |    |  |
| His Val Asp Lys Ala | Val Ser Gly Leu Arg | Ser Leu Thr Thr Leu Leu |     |    |  |
|                     | 100                 | 105                     | 110 |    |  |
| Arg Ala Leu Gly Ala | Gln Lys Glu Ala Ile | Ser Pro Pro Asp Ala Ala |     |    |  |
|                     | 115                 | 120                     | 125 |    |  |
| Ser Ala Ala Pro Leu | Arg Thr Ile Thr Ala | Asp Thr Phe Arg Lys Leu |     |    |  |
|                     | 130                 | 135                     | 140 |    |  |
| Phe Arg Val Tyr Ser | Asn Phe Leu Arg Gly | Lys Leu Lys Leu Tyr Thr |     |    |  |
| 145                 | 150                 | 155                     | 160 |    |  |
| Gly Glu Ala Cys Arg |                     |                         |     |    |  |
|                     | 165                 |                         |     |    |  |

<210> 19  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

|   |     |
|---|-----|
| <400> 19  |     |
| atg gat atg gcc cgg ccc ggt ctg att tgc gac agc agg gtg cta gaa | 48  |
| Met Asp Met Ala Arg Pro Gly Leu Ile Cys Asp Ser Arg Val Leu Glu |     |
| 1 5 10 15   |     |
| aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
| gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa | 144 |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg caa ggg ctt gcc ctg ttg tgc gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |

cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc 384  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
  
 tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg 432  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
  
 ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctt aaa ctt tat acg 480  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160  
  
 ggt gag gct tgt cgc tga 498  
 Gly Glu Ala Cys Arg \*  
 165

<210> 20  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 20  
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 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
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 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160  
 Gly Glu Ala Cys Arg  
 165

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 <211> 499  
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<220>  
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 <222> (2)...(499)

<400> 21

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1 5 10 15

aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt 97  
Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
20 25 30

gaa gaa tat tgc tca ctg aac gag att att act gta ccg gat tcg aaa 145  
Glu Glu Tyr Cys Ser Leu Asn Glu Ile Ile Thr Val Pro Asp Ser Lys  
35 40 45

gtc aac ttg tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 193  
Val Asn Leu Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
50 55 60

gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt 241  
Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
65 70 75 80

caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg 289  
Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
85 90 95

cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc 337  
His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
100 105 110

cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc 385  
Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
115 120 125

tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg 433  
Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
130 135 140

ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg 481  
Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
145 150 155 160

ggg gag gct tgt cgc tga 499  
Gly Glu Ala Cys Arg \*  
165

<210> 22

<211> 165

<212> PRT

<213> Homo sapiens

<400> 22

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Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
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 Glu Glu Tyr Cys Ser Leu Asn Glu Ile Ile Thr Val Pro Asp Ser Lys  
                   35                  40                  45  
 Val Asn Leu Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
                   50                  55                  60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65                                  70                                  75                                  80  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
                                   85                                  90                                  95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
                                   100                                  105                                  110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
                   115                                  120                                  125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
                   130                                  135                                  140  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145                                  150                                  155                                  160  
 Gly Glu Ala Cys Arg  
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<210> 23  
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 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (2)...(499)

<400> 23  
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   Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
     1                                  5                                  10                                  15  
  
 aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt 97  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
                   20                                  25                                  30  
  
 gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat ccg aaa 145  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Pro Lys  
                   35                                  40                                  45  
  
 gtc aac ttg tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 193  
 Val Asn Leu Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
                   50                                  55                                  60  
  
 gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt 241  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
                   65                                  70                                  75                                  80  
  
 caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg 289  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
                                   85                                  90                                  95

|   |     |
|---|-----|
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 337 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
|   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 385 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
|   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 433 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
|   |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg | 481 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |
| 145 150 155 160   |     |
|   |     |
| ggg gag gct tgt cgc tga   | 499 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

<210> 24  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

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| <400> 24  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 5 10 15   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20 25 30  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Pro Lys |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 35 40 45  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Val Asn Leu Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 50 55 60  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 65 70 75 80   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 85 90 95  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 100 105 110   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 115 120 125   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 130 135 140   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 145 150 155 160   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Gly Glu Ala Cys Arg   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 165   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

<210> 25  
 <211> 499  
 <212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (2)...(499)

<400> 25

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Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu

1

5

10

15

aga tac ctg ctc gaa gcg aaa gag gct gaa att atc acc aca ggc tgt 97

Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ile Ile Thr Thr Gly Cys

20

25

30

gca gaa cat tgc tta ctg aac gag aat att act gta ccg gat acg aaa 145

Ala Glu His Cys Leu Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys

35

40

45

gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 193

Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val

50

55

60

gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt 241

Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly

65

70

75

80

caa act tta ctg gta att tcc agt cag cct tgg gaa cca tta cag ttg 289

Gln Thr Leu Leu Val Ile Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu

85

90

95

cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc 337

His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu

100

105

110

cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc 385

Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala

115

120

125

tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg 433

Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu

130

135

140

ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ttt tat acg 481

Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Phe Tyr Thr

145

150

155

160

ggg gag gct tgt cgc tga

499

Gly Glu Ala Cys Arg \*

165

<210> 26

<211> 165

<212> PRT



<213> Homo sapiens

<400> 26

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 1           5           10           15
Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ile Ile Thr Thr Gly Cys
          20           25           30
Ala Glu His Cys Leu Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys
          35           40           45
Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val
          50           55           60
Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly
65           70           75           80
Gln Thr Leu Leu Val Ile Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu
          85           90           95
His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu
          100          105          110
Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala
          115          120          125
Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu
          130          135          140
Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Phe Tyr Thr
145          150          155          160
Gly Glu Ala Cys Arg
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<210> 27

<211> 498

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(498)

<400> 27

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Met Asp Ile Val Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu
 1           5           10           15

aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt      96
Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys
          20           25           30

gta gaa gat tgc tca ctg aac gag aat att act gta ccg gat ccg aaa      144
Val Glu Asp Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Pro Lys
          35           40           45

gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg      192
Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val
          50           55           60

gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt      240
Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly
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| 65  | 70  | 75  | 80  |     |
|---|-----|-----|-----|-----|
| caa act tta ctg gta aat tcc agt cag tct ggg gaa cga tta cag ttg |     |     |     | 288 |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Ser Gly Glu Arg Leu Gln Leu |     |     |     |     |
|   | 85  | 90  | 95  |     |
| cac gtg gat aag gcg gtt tct gga ctg cgc agc ctt acc acg ctg ctc |     |     |     | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |     |     |     |
|   | 100 | 105 | 110 |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc |     |     |     | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |     |     |     |
|   | 115 | 120 | 125 |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg |     |     |     | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |     |     |     |
|   | 130 | 135 | 140 |     |
| ttt cgc gtc tac gcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg |     |     |     | 480 |
| Phe Arg Val Tyr Ala Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |     |     |     |
|   | 145 | 150 | 155 | 160 |
| ggg gag gct tgt cgc tga   |     |     |     | 498 |
| Gly Glu Ala Cys Arg *   |     |     |     |     |
|   | 165 |     |     |     |

<210> 28  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 28

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| Met Asp Ile Val Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |     |     |     |
| 1   | 5   | 10  | 15  |     |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |     |     |     |     |
|   | 20  | 25  | 30  |     |
| Val Glu Asp Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Pro Lys |     |     |     |     |
|   | 35  | 40  | 45  |     |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |     |     |     |
|   | 50  | 55  | 60  |     |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |     |     |     |
| 65  | 70  | 75  | 80  |     |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Ser Gly Glu Arg Leu Gln Leu |     |     |     |     |
|   | 85  | 90  | 95  |     |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |     |     |     |
|   | 100 | 105 | 110 |     |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |     |     |     |
|   | 115 | 120 | 125 |     |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |     |     |     |
|   | 130 | 135 | 140 |     |
| Phe Arg Val Tyr Ala Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |     |     |     |
|   | 145 | 150 | 155 | 160 |
| Gly Glu Ala Cys Arg   |     |     |     |     |
|   | 165 |     |     |     |

<210> 29  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 29  
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 1 5 10 15

aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt 96  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30

gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa 144  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
 35 40 45

gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60

gaa gtt tgg cag ggg ttt gcc ctg ttg tcg gag gca gtc ctg cgg ggt 240  
 Glu Val Trp Gln Gly Phe Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80

caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg 288  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
 85 90 95

cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc 336  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110

cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc 384  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125

tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg 432  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140

ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg 480  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160

ggt gag gct tgt cgc tga 498  
 Gly Glu Ala Cys Arg \*  
 165

<210> 30  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 30  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Phe Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160  
 Gly Glu Ala Cys Arg  
 165

<210> 31  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1) ... (498)

<400> 31  
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 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
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 aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt 96  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa 144  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Val | Asn | Phe | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |     |  |
| 50  |     |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| gaa | gtt | tgg | cag | ggg | ctt | gcc | ctg | ttg | tcg | gag | gca | gtc | ctg | cgg | ggg | 240 |  |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |     |  |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| caa | act | tta | ctg | gta | aat | tcc | agt | cag | cct | tgg | gaa | cca | tta | cag | ttg | 288 |  |
| Gln | Thr | Leu | Leu | Val | Asn | Ser | Ser | Gln | Pro | Trp | Glu | Pro | Leu | Gln | Leu |     |  |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| cac | gtg | gat | aag | gcg | gtt | tct | ggc | ctg | cgc | agc | ctt | acc | acg | ctg | ctc | 336 |  |
| His | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |     |  |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| cgt | gca | ctg | ggg | gcc | caa | aaa | gaa | gct | atc | tcg | ccg | cct | gac | gcg | gcc | 384 |  |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |     |  |
|     |     |     | 115 |     |     |     |     | 120 |     |     |     |     |     | 125 |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| tca | gca | gcg | ccg | tta | cgc | act | att | aca | gcc | gat | acc | ttc | cgt | aaa | ctg | 432 |  |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |     |  |
|     |     |     | 130 |     |     |     |     | 135 |     |     |     |     |     | 140 |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| ttt | cgc | gtc | tac | tcc | aac | ttc | ttg | cgt | agc | aaa | ctg | aaa | ctt | tat | acg | 480 |  |
| Phe | Arg | Val | Tyr | Ser | Asn | Phe | Leu | Arg | Ser | Lys | Leu | Lys | Leu | Tyr | Thr |     |  |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| ggg | gag | gct | tgt | cgc | tga |     |     |     |     |     |     |     |     |     |     | 498 |  |
| Gly | Glu | Ala | Cys | Arg | *   |     |     |     |     |     |     |     |     |     |     |     |  |
|     |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |     |     |  |

<210> 32  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 32  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu

|                     |                     |                         |  |     |  |
|---------------------|---------------------|-------------------------|--|-----|--|
| 130                 |                     | 135                     |  | 140 |  |
| Phe Arg Val Tyr Ser | Asn Phe Leu Arg Ser | Lys Leu Lys Leu Tyr Thr |  |     |  |
| 145                 | 150                 | 155                     |  | 160 |  |
| Gly Glu Ala Cys Arg |                     |                         |  |     |  |
|                     | 165                 |                         |  |     |  |

<210> 33  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 33  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15

aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt 96  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30

gca gaa cat tgc tca ctg aat gag aat att act gta ccg gat acg aaa 144  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
 35 40 45

gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60

gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt 240  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80

caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg 288  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
 85 90 95

cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc 336  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110

cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc 384  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125

tca aca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg 432  
 Ser Thr Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140

ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg 480  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr

145                      150                      155                      160

ggt gag gct tgt cgc tga                      498

Gly Glu Ala Cys Arg \*

165

<210> 34

<211> 165

<212> PRT

<213> Homo sapiens

<400> 34

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Asn | Ile | Thr | Thr | Gly | Cys |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |     |
| Ala | Glu | His | Cys | Ser | Leu | Asn | Glu | Asn | Ile | Thr | Val | Pro | Asp | Thr | Lys |
|     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Val | Asn | Phe | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Gln | Thr | Leu | Leu | Val | Asn | Ser | Ser | Gln | Pro | Trp | Glu | Pro | Leu | Gln | Leu |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| His | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |
|     |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |     |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |
|     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |
| Ser | Thr | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |
|     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |     |
| Phe | Arg | Val | Tyr | Ser | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Leu | Tyr | Thr |
| 145 |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     | 160 |     |
| Gly | Glu | Ala | Cys | Arg |     |     |     |     |     |     |     |     |     |     |     |
|     |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |     |

<210> 35

<211> 498

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(498)

<400> 35

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| atg | gat | att | gcc | ccg | ccc | cgt | ctg | att | tgc | gac | agc | agg | gtg | cta | gaa |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| aga | tac | ctg | ctc | gaa | gcg | aaa | gag | gct | gaa | aat | atc | acc | aca | ggc | tgt |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Asn | Ile | Thr | Thr | Gly | Cys |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |     |

48

96

|   |     |
|---|-----|
| gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa | 144 |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| aaa gtt tgg cag ggg ctt gcc ctg ttg tgc gag gca gtc ctg cgg ggt | 240 |
| Lys Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tgc ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |
| 145 150 155 160   |     |
| ggg gag gtt tgt cgc tga   | 498 |
| Gly Glu Val Cys Arg *   |     |
| 165   |     |

<210> 36  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 36  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Lys Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
 85 90 95



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |
|     |     |     | 115 |     |     |     |     | 120 |     |     |     |     |     | 125 |     |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |
|     |     |     | 130 |     |     |     |     | 135 |     |     |     |     |     | 140 |     |
| Phe | Arg | Val | Tyr | Ser | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Leu | Tyr | Thr |
|     |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Gly | Glu | Val | Cys | Arg |     |     |     |     |     |     |     |     |     |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 165 |

<210> 37  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

|   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| <400> 37  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| atg   | gat | atc | gcc | ccg | ccc | cgt | ctg | att | tgc | gac | agc | agg | gtg | cta | gaa | 48 |
| Met   | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |    |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |    |
| aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 96  |    |
| Arg   | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Asn | Ile | Thr | Thr | Gly | Cys |    |
|   |     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |    |
| gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat tcg aaa |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 144 |    |
| Ala   | Glu | His | Cys | Ser | Leu | Asn | Glu | Asn | Ile | Thr | Val | Pro | Asp | Ser | Lys |    |
|   |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |    |
| gtc aac tta tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 192 |    |
| Val   | Asn | Leu | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |    |
|   |     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |    |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 240 |    |
| Glu   | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |    |
|   |     | 65  |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |    |
| caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 288 |    |
| Gln   | Thr | Leu | Leu | Val | Asn | Ser | Ser | Gln | Pro | Trp | Glu | Pro | Leu | Gln | Leu |    |
|   |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |    |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 336 |    |
| His   | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |    |
|   |     |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |    |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 384 |    |
| Arg   | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |    |
|   |     |     | 115 |     |     |     |     | 120 |     |     |     |     |     | 125 |     |    |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 432 |    |

Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140

ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg 480  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160

ggt gag gct tgt cgc tga 498  
 Gly Glu Ala Cys Arg \*  
 165

<210> 38  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 38  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Ser Lys  
 35 40 45  
 Val Asn Leu Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160  
 Gly Glu Ala Cys Arg  
 165

<210> 39  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 39  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15

|   |     |
|---|-----|
| aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
| gca gaa cat tgc tca ctg aac gag att att act gta ccg gat acg aaa | 144 |
| Ala Glu His Cys Ser Leu Asn Glu Ile Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
| ttt cgc gtc tac gcc aac ttc ttg cgt ggc aaa ctg aaa gtt tat acg | 480 |
| Phe Arg Val Tyr Ala Asn Phe Leu Arg Gly Lys Leu Lys Val Tyr Thr |     |
| 145 150 155 160   |     |
| ggg gag gct tgt cgc tga   | 498 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

<210> 40  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 40  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 Ala Glu His Cys Ser Leu Asn Glu Ile Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val

|                         |                     |                         |     |     |     |
|-------------------------|---------------------|-------------------------|-----|-----|-----|
| 50                      |                     | 55                      |     | 60  |     |
| Glu Val Trp Gln Gly     | Leu Ala Leu Leu Ser | Glu Ala Val Leu Arg Gly |     |     |     |
| 65                      |                     | 70                      |     | 75  | 80  |
| Gln Thr Leu Leu Val     | Asn Ser Ser Gln Pro | Trp Glu Pro Leu Gln Leu |     |     |     |
|                         | 85                  |                         | 90  |     | 95  |
| His Val Asp Lys Ala Val | Ser Gly Leu Arg Ser | Leu Thr Thr Leu Leu     |     |     |     |
|                         | 100                 |                         | 105 |     | 110 |
| Arg Ala Leu Gly Ala Gln | Lys Glu Ala Ile Ser | Pro Pro Asp Ala Ala     |     |     |     |
|                         | 115                 |                         | 120 |     | 125 |
| Ser Ala Ala Pro Leu Arg | Thr Ile Thr Ala Asp | Thr Phe Arg Lys Leu     |     |     |     |
|                         | 130                 |                         | 135 |     | 140 |
| Phe Arg Val Tyr Ala Asn | Phe Leu Arg Gly Lys | Leu Lys Val Tyr Thr     |     |     |     |
| 145                     |                     | 150                     |     | 155 | 160 |
| Gly Glu Ala Cys Arg     |                     |                         |     |     |     |
|                         | 165                 |                         |     |     |     |

<210> 41  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

|   |     |
|---|-----|
| <400> 41  |     |
| atg gat atc gcc ccg tcc cgt ctg att tgc gac agc agg gtg cta gaa | 48  |
| Met Asp Ile Ala Pro Ser Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |
| 1 5 10 15   |     |
| aga tac ctg ctc gaa gcg aaa gag gct gaa act atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Thr Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
| gga gaa aat tgc tca ctg aac gag aat att act gta ccg gat acg aaa | 144 |
| Gly Glu Asn Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tgc gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta aat tcc agt cag cct ggg gaa cta tta cag ttg | 288 |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Gly Glu Leu Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |

[illegible]

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<210> 43
<211> 498
<212> DNA
<213> Homo sapiens
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<400> 43

|   |     |
|---|-----|
| atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa | 48  |
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |
| 1 5 10 15   |     |
|   |     |
| aga tac ctg ctc gaa gcg aaa gag gct gaa agt atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ser Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
|   |     |
| gaa gaa tat tgc tca ctg aac gag aat att act gta ccg gat acg aaa | 144 |
| Glu Glu Tyr Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
|   |     |
| gtc aac ttt tat gcc cgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Arg Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
|   |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
|   |     |
| caa act tta ctg gta aat tcc agt cag gct cgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Ala Arg Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
|   |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
|   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
|   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
|   |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa gtt tat acg | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Val Tyr Thr |     |
| 145 150 155 160   |     |
|   |     |
| ggg gag gct tgt cgc tga   | 498 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

<210> 44  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 44

|   |
|---|
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |
| 1 5 10 15   |

Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ser Ile Thr Thr Gly Cys  
                   20                  25                  30  
 Glu Glu Tyr Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
                   35                  40                  45  
 Val Asn Phe Tyr Ala Arg Lys Arg Met Glu Val Gly Gln Gln Ala Val  
                   50                  55                  60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
  65                                  70                  75                  80  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Ala Arg Glu Pro Leu Gln Leu  
                                   85                  90                  95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
                   100                  105                  110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
                   115                  120                  125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
                   130                  135                  140  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Val Tyr Thr  
  145                                  150                  155                  160  
 Gly Glu Ala Cys Arg  
                                   165

<210> 45  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 45  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
   1                  5                  10                  15  
  
 aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt 96  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
                   20                  25                  30  
  
 gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat gcg aaa 144  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Ala Lys  
                   35                  40                  45  
  
 gtc aac tta tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192  
 Val Asn Leu Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
                   50                  55                  60  
  
 gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt 240  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
  65                                  70                  75                  80  
  
 caa act tta ctg gta aat tcc agt cag act ggg gaa caa tta cag ttg 288  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Thr Gly Glu Gln Leu Gln Leu  
                   85                  90                  95

|   |     |
|---|-----|
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
|   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
|   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
|   |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa gtt tat acg | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Val Tyr Thr |     |
| 145 150 155 160   |     |
|   |     |
| ggg gag gct tgt cgc tga   | 498 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

<210> 46  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

|   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| <400> 46  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 5 10 15   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20 25 30  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Ala Lys |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 35 40 45  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Val Asn Leu Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 50 55 60  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 65 70 75 80   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Thr Gly Glu Gln Leu Gln Leu |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 85 90 95  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 100 105 110   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 115 120 125   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 130 135 140   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Val Tyr Thr |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 145 150 155 160   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Gly Glu Ala Cys Arg   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 165   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

<210> 47  
 <211> 498  
 <212> DNA



<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(498)

<400> 47

|   |     |
|---|-----|
| atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa | 48  |
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |
| 1 5 10 15   |     |
| aga tac ctg ctt gaa gcg aaa gag gct gaa agt atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ser Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
| gca gaa gat tgc tca ctg aac gag aat att act gta ccg gat acg aaa | 144 |
| Ala Glu Asp Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta aat tcc agt cag tct cgg gaa cga tta cag ttg | 288 |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Ser Arg Glu Arg Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |
| 145 150 155 160   |     |
| ggg gag gct tgt cgc tga   | 498 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

<210> 48

<211> 165

<212> PRT

<213> Homo sapiens

<400> 48

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Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu
 1              5              10              15
Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ser Ile Thr Thr Gly Cys
              20              25              30
Ala Glu Asp Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys
              35              40              45
Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val
              50              55              60
Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly
65              70              75              80
Gln Thr Leu Leu Val Asn Ser Ser Gln Ser Arg Glu Arg Leu Gln Leu
              85              90              95
His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu
              100              105              110
Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala
              115              120              125
Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu
              130              135              140
Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr
145              150              155              160
Gly Glu Ala Cys Arg
              165
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<210> 49

<211> 503

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(498)

<400> 49

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atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa      48
Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu
 1              5              10              15

aga tac ctg ctc gaa gcg aaa gag gct gaa act atc acc aca ggc tgt      96
Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Thr Ile Thr Thr Gly Cys
              20              25              30

gta gaa tat tgc tca ctg aac gag aat att act gta ccg gat acg aaa      144
Val Glu Tyr Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys
              35              40              45

gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg      192
Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val
              50              55              60

gaa gtt tgg cag ggg ctt gcc ctg ttg tgc gag gca gtc ctg cgg ggt      240
Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly
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| 65  | 70  | 75  | 80  |     |
|---|-----|-----|-----|-----|
| caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg |     |     |     | 288 |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |     |     |     |
|   | 85  | 90  | 95  |     |
| cac gtg gat aag gcg gtt ttt ggc ctg cgc agc ctt acc acg ctg ctc |     |     |     | 336 |
| His Val Asp Lys Ala Val Phe Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |     |     |     |
|   | 100 | 105 | 110 |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc |     |     |     | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |     |     |     |
|   | 115 | 120 | 125 |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg |     |     |     | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |     |     |     |
|   | 130 | 135 | 140 |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg |     |     |     | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |     |     |     |
|   | 145 | 150 | 155 | 160 |
| ggt gag gct tgt cgc tga actct                                   |     |     |     | 503 |
| Gly Glu Ala Cys Arg *   |     |     |     |     |
|   | 165 |     |     |     |

<210> 50  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 50

|   |     |     |     |  |
|---|-----|-----|-----|--|
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |     |     |  |
| 1   | 5   | 10  | 15  |  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Thr Ile Thr Thr Gly Cys |     |     |     |  |
|   | 20  | 25  | 30  |  |
| Val Glu Tyr Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |     |     |  |
|   | 35  | 40  | 45  |  |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |     |     |  |
|   | 50  | 55  | 60  |  |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |     |     |  |
| 65  | 70  | 75  | 80  |  |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |     |     |  |
|   | 85  | 90  | 95  |  |
| His Val Asp Lys Ala Val Phe Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |     |     |  |
|   | 100 | 105 | 110 |  |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |     |     |  |
|   | 115 | 120 | 125 |  |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |     |     |  |
|   | 130 | 135 | 140 |  |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |     |     |  |
| 145   | 150 | 155 | 160 |  |
| Gly Glu Ala Cys Arg   |     |     |     |  |
|   | 165 |     |     |  |

<210> 51  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 51  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15

aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt 96  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30

gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat gcg aaa 144  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Ala Lys  
 35 40 45

gtc aac ttt tat gcc cgg aaa cga atg gaa gtt gga caa cag gcg gtg 192  
 Val Asn Phe Tyr Ala Arg Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60

gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg ccg ggt 240  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80

caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg 288  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
 85 90 95

cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc 336  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110

cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc 384  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125

tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg 432  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140

ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa gtt tat acg 480  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Val Tyr Thr  
 145 150 155 160

ggt gag gct tgt cgc tga 498  
 Gly Glu Ala Cys Arg \*  
 165

<210> 52  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 52  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Ala Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Arg Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Val Tyr Thr  
 145 150 155 160  
 Gly Glu Ala Cys Arg  
 165

<210> 53  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 53  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt 96  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 gta gaa gat tgc tca ctg aac gag aat att act gta ccg gat acg aaa 144  
 Val Glu Asp Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192

|   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Val   | Asn | Phe | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |  |  |
| 50  |     |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |  |  |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt 240 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Glu   | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |  |  |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |  |  |
| caa act tta ctg gta att tcc agt cag cct tgg gaa cca tta cag ttg 288 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Gln   | Thr | Leu | Leu | Val | Ile | Ser | Ser | Gln | Pro | Trp | Glu | Pro | Leu | Gln | Leu |  |  |
|   |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |  |  |
| cac gtg gat aag acg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc 336 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| His   | Val | Asp | Lys | Thr | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |  |  |
|   |     |     | 100 |     |     |     | 105 |     |     |     |     |     | 110 |     |     |  |  |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc 384 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Arg   | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |  |  |
|   |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |  |  |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg 432 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Ser   | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |  |  |
|   |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |  |  |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa att tat acg 480 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Phe   | Arg | Val | Tyr | Ser | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Ile | Tyr | Thr |  |  |
| 145   |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |  |  |
| ggt gag gct tgt cgc tga 498   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Gly   | Glu | Ala | Cys | Arg | *   |     |     |     |     |     |     |     |     |     |     |  |  |
|   |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |     |  |  |

<210> 54  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 54

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |  |  |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |  |  |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Asn | Ile | Thr | Thr | Gly | Cys |  |  |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |     |  |  |
| Val | Glu | Asp | Cys | Ser | Leu | Asn | Glu | Asn | Ile | Thr | Val | Pro | Asp | Thr | Lys |  |  |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |  |  |
| Val | Asn | Phe | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |  |  |
| 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |     |  |  |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |  |  |
| 65  |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |     |  |  |
| Gln | Thr | Leu | Leu | Val | Ile | Ser | Ser | Gln | Pro | Trp | Glu | Pro | Leu | Gln | Leu |  |  |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |  |  |
| His | Val | Asp | Lys | Thr | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |  |  |
|     |     | 100 |     |     |     | 105 |     |     |     |     |     | 110 |     |     |     |  |  |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |  |  |
|     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |  |  |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |  |  |

|                     |                     |                         |     |     |
|---------------------|---------------------|-------------------------|-----|-----|
| 130                 |                     | 135                     |     | 140 |
| Phe Arg Val Tyr Ser | Asn Phe Leu Arg Gly | Lys Leu Lys Ile Tyr Thr |     |     |
| 145                 | 150                 | 155                     | 160 |     |
| Gly Glu Ala Cys Arg |                     |                         |     |     |
|                     | 165                 |                         |     |     |

<210> 55  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

|   |     |
|---|-----|
| <400> 55  |     |
| atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa | 48  |
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |
| 1 5 10 15   |     |
| aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
| gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa | 144 |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta agt tcc agt cag cct tgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Ser Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt ttt ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Phe Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |

145                      150                      155                      160

ggt gag gct tgt cgc tga                      498

Gly Glu Ala Cys Arg \*

165

<210> 56

<211> 165

<212> PRT

<213> Homo sapiens

<400> 56

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Asn | Ile | Thr | Thr | Gly | Cys |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |     |
| Ala | Glu | His | Cys | Ser | Leu | Asn | Glu | Asn | Ile | Thr | Val | Pro | Asp | Thr | Lys |
|     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Val | Asn | Phe | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Gln | Thr | Leu | Leu | Val | Ser | Ser | Ser | Gln | Pro | Trp | Glu | Pro | Leu | Gln | Leu |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| His | Val | Asp | Lys | Ala | Val | Phe | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |
|     |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |     |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |
|     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |
|     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |     |
| Phe | Arg | Val | Tyr | Ser | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Leu | Tyr | Thr |
| 145 |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     | 160 |     |
| Gly | Glu | Ala | Cys | Arg |     |     |     |     |     |     |     |     |     |     |     |
|     |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |     |

<210> 57

<211> 498

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(498)

<400> 57

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| atg | gat | atc | gcc | ccg | ccc | cgt | ctg | att | tgc | gac | agc | agg | gtg | cta | gaa |
| 1   |     |     | 5   |     |     |     |     |     | 10  |     |     |     | 15  |     |     |
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| aga | tac | ctg | ctc | gaa | gcg | aaa | gag | gct | gaa | aat | atc | acc | aca | ggc | tgt |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Asn | Ile | Thr | Thr | Gly | Cys |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |     |

48

96



|   |     |
|---|-----|
| gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg gaa | 144 |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Glu |     |
| 35 40 45  |     |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tgc gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tgc ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ttt tat acg | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Phe Tyr Thr |     |
| 145 150 155 160   |     |
| ggt gag gct tgt cgc tga   | 498 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

<210> 58  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 58

|   |  |
|---|--|
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |  |
| 1 5 10 15   |  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |  |
| 20 25 30  |  |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Glu |  |
| 35 40 45  |  |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |  |
| 50 55 60  |  |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |  |
| 65 70 75 80   |  |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |  |
| 85 90 95  |  |

His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
                   100                                  105                                  110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
                   115                                  120                                  125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
                   130                                  135                                  140  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Phe Tyr Thr  
 145                                  150                                  155                                  160  
 Gly Glu Ala Cys Arg  
                                   165

<210> 59  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 59  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg tta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
   1                                  5                                  10                                  15  
  
 aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt 96  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
                                   20                                  25                                  30  
  
 gca gaa cat tgc tca ctg aac gag att att act gta ccg gat ccg aaa 144  
 Ala Glu His Cys Ser Leu Asn Glu Ile Ile Thr Val Pro Asp Pro Lys  
                                   35                                  40                                  45  
  
 gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
   50                                  55                                  60  
  
 gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt 240  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
   65                                  70                                  75                                  80  
  
 caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg 288  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
                                   85                                  90                                  95  
  
 cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc 336  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
                                   100                                  105                                  110  
  
 cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc 384  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
                                   115                                  120                                  125  
  
 tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg 432

Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140

ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa att tat acg 480  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Ile Tyr Thr  
 145 150 155 160

ggg gag gct tgt cgc tga 498  
 Gly Glu Ala Cys Arg \*  
 165

<210> 60  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 60  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 Ala Glu His Cys Ser Leu Asn Glu Ile Ile Thr Val Pro Asp Pro Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Ile Tyr Thr  
 145 150 155 160  
 Gly Glu Ala Cys Arg  
 165

<210> 61  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 61  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15

|   |     |
|---|-----|
| aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc atc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Ile Thr Gly Cys |     |
| 20 25 30  |     |
|   |     |
| gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa | 144 |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
|   |     |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
|   |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
|   |     |
| caa act tta ctg gta aat tcc agt cag act tgg gaa caa tta cag ttg | 288 |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Thr Trp Glu Gln Leu Gln Leu |     |
| 85 90 95  |     |
|   |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
|   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
|   |     |
| tca gca gcg ctg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Leu Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
|   |     |
| ttt cgc gtc tac acc aac ttc ttg cgt ggc aaa ctg aaa gtt tat acg | 480 |
| Phe Arg Val Tyr Thr Asn Phe Leu Arg Gly Lys Leu Lys Val Tyr Thr |     |
| 145 150 155 160   |     |
|   |     |
| ggt gag gct tgt cgc tga   | 498 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

<210> 62  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 62  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Ile Thr Gly Cys  
 20 25 30  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val

|                         |                     |                         |     |    |
|-------------------------|---------------------|-------------------------|-----|----|
| 50                      |                     | 55                      |     | 60 |
| Glu Val Trp Gln Gly     | Leu Ala Leu Leu Ser | Glu Ala Val Leu Arg Gly |     |    |
| 65                      | 70                  | 75                      | 80  |    |
| Gln Thr Leu Leu Val     | Asn Ser Ser Gln Thr | Trp Glu Gln Leu Gln Leu |     |    |
|                         | 85                  | 90                      | 95  |    |
| His Val Asp Lys Ala Val | Ser Gly Leu Arg Ser | Leu Thr Thr Leu Leu     |     |    |
|                         | 100                 | 105                     | 110 |    |
| Arg Ala Leu Gly Ala Gln | Lys Glu Ala Ile Ser | Pro Pro Asp Ala Ala     |     |    |
|                         | 115                 | 120                     | 125 |    |
| Ser Ala Ala Leu Leu Arg | Thr Ile Thr Ala Asp | Thr Phe Arg Lys Leu     |     |    |
|                         | 130                 | 135                     | 140 |    |
| Phe Arg Val Tyr Thr     | Asn Phe Leu Arg Gly | Lys Leu Lys Val Tyr Thr |     |    |
| 145                     | 150                 | 155                     | 160 |    |
| Gly Glu Ala Cys Arg     |                     |                         |     |    |
|                         | 165                 |                         |     |    |

<210> 63  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

|   |     |
|---|-----|
| <400> 63  |     |
| atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa | 48  |
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |
| 1 5 10 15   |     |
| aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
| gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa | 144 |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag gga ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta act tcc agt cag gct cgg gaa cga tta cag ttg | 288 |
| Gln Thr Leu Leu Val Thr Ser Ser Gln Ala Arg Glu Arg Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |

cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc 384  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
  
 tca gca gcg ccg tta cgc act att acg gcc gat acc ttc cgt aaa ctg 432  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
  
 ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg 480  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160  
  
 ggt gag gct tgt cgc tga 498  
 Gly Glu Ala Cys Arg \*  
 165

<210> 64  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 64  
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 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Thr Ser Ser Gln Ala Arg Glu Arg Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160  
 Gly Glu Ala Cys Arg  
 165

<210> 65  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 65  
atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
1 5 10 15

aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt 96  
Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
20 25 30

gga gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa 144  
Gly Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
35 40 45

gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192  
Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
50 55 60

gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt 240  
Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
65 70 75 80

caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg 288  
Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
85 90 95

cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc 336  
His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
100 105 110

cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc 384  
Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
115 120 125

tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg 432  
Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
130 135 140

ttt cgc gtc tac gcc aac ttc ttg cgt ggc aaa ctg aaa gtt tat acg 480  
Phe Arg Val Tyr Ala Asn Phe Leu Arg Gly Lys Leu Lys Val Tyr Thr  
145 150 155 160

ggg gag gct tgt cgc tga 498  
Gly Glu Ala Cys Arg \*  
165

<210> 66  
<211> 165  
<212> PRT  
<213> Homo sapiens

<400> 66  
Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
1 5 10 15

Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
                   20                                  25                                  30  
 Gly Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
                   35                                  40                                  45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
                   50                                  55                                  60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65                                  70                                  75                                  80  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
                                   85                                  90                                  95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
                   100                                  105                                  110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
                   115                                  120                                  125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130                                  135                                  140  
 Phe Arg Val Tyr Ala Asn Phe Leu Arg Gly Lys Leu Lys Val Tyr Thr  
 145                                  150                                  155                                  160  
 Gly Glu Ala Cys Arg  
                                   165

<210> 67  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 67  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
   1                  5                                  10                                  15  
  
 aga tac ctg ctc gaa gcg aaa gag gct gaa att atc acc aca ggc tgt 96  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ile Ile Thr Thr Gly Cys  
                   20                                  25                                  30  
  
 gca gaa cat tgc tca ctg aac gag agt att act gta ccg gat gcg aaa 144  
 Ala Glu His Cys Ser Leu Asn Glu Ser Ile Thr Val Pro Asp Ala Lys  
                   35                                  40                                  45  
  
 gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
                   50                                  55                                  60  
  
 gaa gtt tgg cag ggg ctt gcc ctg ttg tgc gag gca gtc ctg cgg ggt 240  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
                   65                                  70                                  75                                  80  
  
 caa act tta ctg gta aat tcc agt cag gct tgg gaa cca tta cag ttg 288  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Ala Trp Glu Pro Leu Gln Leu  
                   85                                  90                                  95



|   |     |
|---|-----|
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
|   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
|   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
|   |     |
| ttt cgc gtc tac acc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg | 480 |
| Phe Arg Val Tyr Thr Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |
| 145 150 155 160   |     |
|   |     |
| ggt gag gct tgt ccc tga   | 498 |
| Gly Glu Ala Cys Pro *   |     |
| 165   |     |

<210> 68  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

|   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| <400> 68  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 5 10 15   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ile Ile Thr Thr Gly Cys |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20 25 30  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ala Glu His Cys Ser Leu Asn Glu Ser Ile Thr Val Pro Asp Ala Lys |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 35 40 45  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 50 55 60  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 65 70 75 80   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Ala Trp Glu Pro Leu Gln Leu |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 85 90 95  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 100 105 110   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 115 120 125   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 130 135 140   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Phe Arg Val Tyr Thr Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 145 150 155 160   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Gly Glu Ala Cys Pro   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 165   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

<210> 69  
 <211> 498  
 <212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(498)

<400> 69

|   |     |
|---|-----|
| atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa | 48  |
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |
| 1 5 10 15   |     |
| aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
| gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa | 144 |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
| gtc aac gtc tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Val Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
| ttt cgc gtc tac gcc aac ttc ttg cgt ggc aaa ctg aaa att tat acg | 480 |
| Phe Arg Val Tyr Ala Asn Phe Leu Arg Gly Lys Leu Lys Ile Tyr Thr |     |
| 145 150 155 160   |     |
| ggt gag gct tgt cgc tga   | 498 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

<210> 70

<211> 165

<212> PRT

<213> Homo sapiens

<400> 70

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Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu
 1          5          10          15
Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys
          20          25          30
Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys
          35          40          45
Val Asn Val Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val
          50          55          60
Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly
65          70          75          80
Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu
          85          90          95
His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu
          100          105          110
Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala
          115          120          125
Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu
          130          135          140
Phe Arg Val Tyr Ala Asn Phe Leu Arg Gly Lys Leu Lys Ile Tyr Thr
145          150          155          160
Gly Glu Ala Cys Arg
          165
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<210> 71

<211> 498

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(498)

<400> 71

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atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa      48
Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu
 1          5          10          15

aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt      96
Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys
          20          25          30

gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa      144
Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys
          35          40          45

gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg      192
Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val
          50          55          60

gaa gtt tgg cag ggg ctt gcc ctg ttg tgc gag gca gtc ctg cgg ggt      240
Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly
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| 65  | 70  | 75  | 80  |     |
|---|-----|-----|-----|-----|
| caa act tta ctg gta agt tcc agt cag cct tgg gaa cca tta cag ttg |     |     |     | 288 |
| Gln Thr Leu Leu Val Ser Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |     |     |     |
|   | 85  | 90  | 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc |     |     |     | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |     |     |     |
|   | 100 | 105 | 110 |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc |     |     |     | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |     |     |     |
|   | 115 | 120 | 125 |     |
| tca gca gcg ccg tta cgt act att aca gcc gat acc ttc cgt aaa ctg |     |     |     | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |     |     |     |
|   | 130 | 135 | 140 |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa att tat acg |     |     |     | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Ile Tyr Thr |     |     |     |     |
|   | 145 | 150 | 155 | 160 |
| ggt gag gct tgt cgc tga   |     |     |     | 498 |
| Gly Glu Ala Cys Arg *   |     |     |     |     |
|   | 165 |     |     |     |

<210> 72  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 72

|   |     |     |     |  |
|---|-----|-----|-----|--|
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |     |     |  |
| 1   | 5   | 10  | 15  |  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |     |     |     |  |
|   | 20  | 25  | 30  |  |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |     |     |  |
|   | 35  | 40  | 45  |  |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |     |     |  |
|   | 50  | 55  | 60  |  |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |     |     |  |
| 65  | 70  | 75  | 80  |  |
| Gln Thr Leu Leu Val Ser Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |     |     |  |
|   | 85  | 90  | 95  |  |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |     |     |  |
|   | 100 | 105 | 110 |  |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |     |     |  |
|   | 115 | 120 | 125 |  |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |     |     |  |
|   | 130 | 135 | 140 |  |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Ile Tyr Thr |     |     |     |  |
| 145   | 150 | 155 | 160 |  |
| Gly Glu Ala Cys Arg   |     |     |     |  |
|   | 165 |     |     |  |

<210> 73  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 73  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15

aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt 96  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30

gaa gaa aat tgc tca ctg aac gag agt att act gta ccg gat acg aaa 144  
 Glu Glu Asn Cys Ser Leu Asn Glu Ser Ile Thr Val Pro Asp Thr Lys  
 35 40 45

gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60

gaa gtt tgg cag ggg ctt gcc ctg ttg tgc gag gca gtc ctg cgg ggt 240  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80

caa act tta ctg gta att tcc agt cag tct cgg gaa cca tta cag ttg 288  
 Gln Thr Leu Leu Val Ile Ser Ser Gln Ser Arg Glu Pro Leu Gln Leu  
 85 90 95

cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc 336  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110

cgt gca ctg ggt gcc caa aaa gaa gct atc tgc ccg cct gac gcg gcc 384  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125

tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg 432  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140

ttt cgc gtc tac gcc aac ttc ttg cgt ggc aaa ctg aaa ttt tat acg 480  
 Phe Arg Val Tyr Ala Asn Phe Leu Arg Gly Lys Leu Lys Phe Tyr Thr  
 145 150 155 160

ggg gag gct tgt cgc tga 498  
 Gly Glu Ala Cys Arg \*  
 165

<210> 74  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 74  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 Glu Glu Asn Cys Ser Leu Asn Glu Ser Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Ile Ser Ser Gln Ser Arg Glu Pro Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 Phe Arg Val Tyr Ala Asn Phe Leu Arg Gly Lys Leu Lys Phe Tyr Thr  
 145 150 155 160  
 Gly Glu Ala Cys Arg  
 165

<210> 75  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 75  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt 96  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 gca gaa cat tgt tca ctg aac gag aat att act gta ccg gat tcg aaa 144  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Ser Lys  
 35 40 45  
 gtc aac ttg tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Val | Asn | Leu | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |     |  |
| 50  |     |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| gaa | gtt | tgg | cag | ggg | ctt | gcc | ctg | ttg | tcg | gag | gca | gtc | ctg | cgg | ggg | 240 |  |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |     |  |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| caa | act | tta | ctg | gta | att | tcc | agt | cag | cct | tgg | gaa | cca | tta | cag | ttg | 288 |  |
| Gln | Thr | Leu | Leu | Val | Ile | Ser | Ser | Gln | Pro | Trp | Glu | Pro | Leu | Gln | Leu |     |  |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| cac | gtg | gat | aag | gcg | gtt | tct | ggc | ctg | cgc | agc | ctt | acc | acg | ctg | ctc | 336 |  |
| His | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |     |  |
|     |     |     | 100 |     |     |     | 105 |     |     |     |     | 110 |     |     |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| cgt | gca | ctg | ggg | gcc | caa | aaa | gaa | gct | atc | tcg | ccg | cct | gac | gcg | gcc | 384 |  |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |     |  |
|     |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| tca | gca | gcg | ccg | tta | cgc | act | att | aca | gcc | gat | acc | ttc | cg  | aaa | ctg | 432 |  |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |     |  |
|     |     | 130 |     |     | 135 |     |     |     |     | 140 |     |     |     |     |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| ttt | cg  | gtc | tac | acc | aac | ttc | ttg | cg  | ggc | aaa | ctg | aaa | ctt | tat | acg | 480 |  |
| Phe | Arg | Val | Tyr | Thr | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Leu | Tyr | Thr |     |  |
| 145 |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     | 160 |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| ggg | gag | gct | tgt | cg  | tga |     |     |     |     |     |     |     |     |     |     | 498 |  |
| Gly | Glu | Ala | Cys | Arg | *   |     |     |     |     |     |     |     |     |     |     |     |  |
|     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |     |     |     |  |

<210> 76  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 76  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Ser Lys  
 35 40 45  
 Val Asn Leu Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Ile Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu

|                     |                     |                         |     |     |
|---------------------|---------------------|-------------------------|-----|-----|
| 130                 |                     | 135                     |     | 140 |
| Phe Arg Val Tyr Thr | Asn Phe Leu Arg Gly | Lys Leu Lys Leu Tyr Thr |     |     |
| 145                 | 150                 | 155                     | 160 |     |
| Gly Glu Ala Cys Arg |                     |                         |     |     |
|                     | 165                 |                         |     |     |

<210> 77  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 77

|   |     |
|---|-----|
| atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa | 48  |
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |
| 1 5 10 15   |     |
|   |     |
| aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
|   |     |
| gta gaa tat tgc tca ctg aac gag aat att act gta ccg gat acg aaa | 144 |
| Val Glu Tyr Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
|   |     |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
|   |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
|   |     |
| caa act tta ctg gta aat tcc agt cag gct agg gaa caa tta cag ttg | 288 |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Ala Arg Glu Gln Leu Gln Leu |     |
| 85 90 95  |     |
|   |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
|   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
|   |     |
| tca gca acg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Thr Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
|   |     |
| ttt cgc gtc tac gcc aac ttc ttg cgt ggc aaa ctg aaa att tat acg | 480 |
| Phe Arg Val Tyr Ala Asn Phe Leu Arg Gly Lys Leu Lys Ile Tyr Thr |     |



145                      150                      155                      160

ggt gag gct tgt cgc tga                      498

Gly Glu Ala Cys Arg \*

165

<210> 78

<211> 165

<212> PRT

<213> Homo sapiens

<400> 78

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Asn | Ile | Thr | Thr | Gly | Cys |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |     |
| Val | Glu | Tyr | Cys | Ser | Leu | Asn | Glu | Asn | Ile | Thr | Val | Pro | Asp | Thr | Lys |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Val | Asn | Phe | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Gln | Thr | Leu | Leu | Val | Asn | Ser | Ser | Gln | Ala | Arg | Glu | Gln | Leu | Gln | Leu |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| His | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |
|     |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |     |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ser | Ala | Thr | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Phe | Arg | Val | Tyr | Ala | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Ile | Tyr | Thr |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Gly | Glu | Ala | Cys | Arg |     |     |     |     |     |     |     |     |     |     |     |
|     |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |     |

<210> 79

<211> 498

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(498)

<400> 79

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| atg | gat | atc | gcc | ccg | ccc | cgt | ctg | att | tgc | gac | agc | agg | gtg | cta | gaa |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| aga | tac | ctg | ctc | gaa | gcg | aaa | gag | gct | gaa | aat | atc | acc | aca | ggc | tgt |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Asn | Ile | Thr | Thr | Gly | Cys |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |     |

48

96

|   |     |
|---|-----|
| gga gaa cat tgc tca ctg aac gag act att act gta ccg gat acg aaa | 144 |
| Gly Glu His Cys Ser Leu Asn Glu Thr Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tgc gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta act tcc agt cag tct tgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Thr Ser Ser Gln Ser Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tgc ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa att tat acg | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Ile Tyr Thr |     |
| 145 150 155 160   |     |
| ggt gag gct tgt cgc tga   | 498 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

<210> 80  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 80  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 Gly Glu His Cys Ser Leu Asn Glu Thr Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Thr Ser Ser Gln Ser Trp Glu Pro Leu Gln Leu  
 85 90 95

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |
|     |     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |
|     |     | 115 |     |     |     |     |     | 120 |     |     |     |     | 125 |     |     |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |
|     |     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |
| Phe | Arg | Val | Tyr | Ser | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Ile | Tyr | Thr |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Gly | Glu | Ala | Cys | Arg |     |     |     |     |     |     |     |     |     |     |     |
|     |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |     |

<210> 81  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

|   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| <400> 81  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| atg   | gat | atc | gcc | ccg | ccc | cgt | ctg | att | tgc | gac | agc | agg | gtg | cta | gaa | 48 |
| Met   | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |    |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |    |
| aga tac ctg ctc gaa gcg aaa gag gct gaa act atc acc aca ggc tgt |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 96  |    |
| Arg   | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Thr | Ile | Thr | Thr | Gly | Cys |    |
|   |     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |    |
| gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 144 |    |
| Ala   | Glu | His | Cys | Ser | Leu | Asn | Glu | Asn | Ile | Thr | Val | Pro | Asp | Thr | Lys |    |
|   |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |    |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 192 |    |
| Val   | Asn | Phe | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |    |
|   | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |    |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tgc gag gca gtc ctg cgg ggt |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 240 |    |
| Glu   | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |    |
|   | 65  |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |    |
| caa act tta ctg gta aat tcc agt cag tct tgg gaa cca tta cag ttg |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 288 |    |
| Gln   | Thr | Leu | Leu | Val | Asn | Ser | Ser | Gln | Ser | Trp | Glu | Pro | Leu | Gln | Leu |    |
|   |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |    |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 336 |    |
| His   | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |    |
|   |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |    |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tgc ccg cct gac gcg gcc |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 384 |    |
| Arg   | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |    |
|   |     | 115 |     |     |     |     | 120 |     |     |     |     |     | 125 |     |     |    |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 432 |    |

Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140

ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg 480  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160

ggt gag gct tgt cgc tga ' 498  
 Gly Glu Ala Cys Arg \*  
 165

<210> 82  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 82  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Thr Ile Thr Thr Gly Cys  
 20 25 30  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Ser Trp Glu Pro Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160  
 Gly Glu Ala Cys Arg  
 165

<210> 83  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 83  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15

|   |     |
|---|-----|
| aga tac ctg ttc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Phe Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
| gaa gaa aat tgc tca ctg aac gag agt att act gta ccg gat acg aaa | 144 |
| Glu Glu Asn Cys Ser Leu Asn Glu Ser Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
| gtc aac ttg tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Leu Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta aat tcc agt cag cct tgg gaa cta tta cag ttg | 288 |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Leu Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |
| 145 150 155 160   |     |
| ggt gag gct tgt cgc tga   | 498 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

<210> 84  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 84  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Phe Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 Glu Glu Asn Cys Ser Leu Asn Glu Ser Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 Val Asn Leu Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val

|                         |                     |                         |     |    |
|-------------------------|---------------------|-------------------------|-----|----|
| 50                      |                     | 55                      |     | 60 |
| Glu Val Trp Gln Gly     | Leu Ala Leu Leu Ser | Glu Ala Val Leu Arg Gly |     |    |
| 65                      | 70                  | 75                      | 80  |    |
| Gln Thr Leu Leu Val     | Asn Ser Ser Gln Pro | Trp Glu Leu Leu Gln Leu |     |    |
|                         | 85                  | 90                      | 95  |    |
| His Val Asp Lys Ala Val | Ser Gly Leu Arg Ser | Leu Thr Thr Leu Leu     |     |    |
|                         | 100                 | 105                     | 110 |    |
| Arg Ala Leu Gly Ala Gln | Lys Glu Ala Ile Ser | Pro Pro Asp Ala Ala     |     |    |
|                         | 115                 | 120                     | 125 |    |
| Ser Ala Ala Pro Leu Arg | Thr Ile Thr Ala Asp | Thr Phe Arg Lys Leu     |     |    |
|                         | 130                 | 135                     | 140 |    |
| Phe Arg Val Tyr Ser     | Asn Phe Leu Arg Gly | Lys Leu Lys Leu Tyr Thr |     |    |
| 145                     | 150                 | 155                     | 160 |    |
| Gly Glu Ala Cys Arg     |                     |                         |     |    |
|                         | 165                 |                         |     |    |

<210> 85  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

|   |     |
|---|-----|
| <400> 85  |     |
| atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa | 48  |
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |
| 1 5 10 15   |     |
| aga tac ctg ctc gaa gcg aaa gag gct gaa att atc act aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ile Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
| gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat gcg aaa | 144 |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Ala Lys |     |
| 35 40 45  |     |
| gtc aac cta tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Leu Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| aaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Lys Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta att tcc agt cag cct tgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Ile Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |

cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc 384  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
  
 tca gca gcg ccg tta tgc act att aca gcc gat acc ttc cgt aaa ctg 432  
 Ser Ala Ala Pro Leu Cys Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
  
 ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg 480  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160  
  
 ggt gag gct tgt cgc tga 498  
 Gly Glu Ala Cys Arg \*  
 165

<210> 86  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 86  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ile Ile Thr Thr Gly Cys  
 20 25 30  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Ala Lys  
 35 40 45  
 Val Asn Leu Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Lys Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Ile Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Cys Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160  
 Gly Glu Ala Cys Arg  
 165

<210> 87  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 87

|   |     |
|---|-----|
| atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa | 48  |
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |
| 1 5 10 15   |     |
|   |     |
| aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
|   |     |
| gca gaa tat tgc tca ctg aac gag act att act gta ccg gat tcg aaa | 144 |
| Ala Glu Tyr Cys Ser Leu Asn Glu Thr Ile Thr Val Pro Asp Ser Lys |     |
| 35 40 45  |     |
|   |     |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
|   |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
|   |     |
| caa act tta ctg gta att tcc agt cag cct tgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Ile Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
|   |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
|   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
|   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
|   |     |
| ttt cgc gtc tac gcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg | 480 |
| Phe Arg Val Tyr Ala Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |
| 145 150 155 160   |     |
|   |     |
| ggt gag gct tgt cgc tga   | 498 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

<210> 88  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 88

|   |
|---|
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |
| 1 5 10 15   |



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Asn | Ile | Thr | Thr | Gly | Cys |
|     |     | 20  |     |     |     |     |     | 25  |     |     |     |     |     | 30  |     |
| Ala | Glu | Tyr | Cys | Ser | Leu | Asn | Glu | Thr | Ile | Thr | Val | Pro | Asp | Ser | Lys |
|     |     | 35  |     |     |     |     |     | 40  |     |     |     |     |     | 45  |     |
| Val | Asn | Phe | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |
|     |     | 50  |     |     |     |     |     | 55  |     |     |     |     |     | 60  |     |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Gln | Thr | Leu | Leu | Val | Ile | Ser | Ser | Gln | Pro | Trp | Glu | Pro | Leu | Gln | Leu |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |
| His | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |
|     |     |     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |
|     |     | 115 |     |     |     |     |     | 120 |     |     |     |     |     | 125 |     |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |
|     |     | 130 |     |     |     |     | 135 |     |     |     |     |     |     | 140 |     |
| Phe | Arg | Val | Tyr | Ala | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Leu | Tyr | Thr |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Gly | Glu | Ala | Cys | Arg |     |     |     |     |     |     |     |     |     |     |     |
|     |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |     |

<210> 89  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

|   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| <400> 89  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| atg   | gat | atc | gcc | ccg | ccc | cgt | ctg | att | tgc | gac | agc | agg | gtg | cta | gaa | 48 |
| Met   | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |    |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |    |
| aga tac ctg ctc gaa gcg aaa gag gct gaa agt atc acc aca ggc tgt |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 96  |    |
| Arg   | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Ser | Ile | Thr | Thr | Gly | Cys |    |
|   |     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |    |
| gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat tcg aaa |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 144 |    |
| Ala   | Glu | His | Cys | Ser | Leu | Asn | Glu | Asn | Ile | Thr | Val | Pro | Asp | Ser | Lys |    |
|   |     |     | 35  |     |     |     |     | 40  |     |     |     |     |     | 45  |     |    |
| gtc aac atg tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 192 |    |
| Val   | Asn | Met | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |    |
|   |     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |    |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 240 |    |
| Glu   | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |    |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     |     | 80  |    |
| caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 288 |    |
| Gln   | Thr | Leu | Leu | Val | Asn | Ser | Ser | Gln | Pro | Trp | Glu | Pro | Leu | Gln | Leu |    |
|   |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |    |

|   |     |
|---|-----|
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
|   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
|   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
|   |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |
| 145 150 155 160   |     |
|   |     |
| ggg gag gct tgt cgc tga   | 498 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

<210> 90  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

|          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 90 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Met      | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |
| 1        |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Arg      | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Ser | Ile | Thr | Thr | Gly | Cys |
|          |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |     |
| Ala      | Glu | His | Cys | Ser | Leu | Asn | Glu | Asn | Ile | Thr | Val | Pro | Asp | Ser | Lys |
|          |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Val      | Asn | Met | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |
|          | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Glu      | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |
| 65       |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Gln      | Thr | Leu | Leu | Val | Asn | Ser | Ser | Gln | Pro | Trp | Glu | Pro | Leu | Gln | Leu |
|          |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| His      | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |
|          |     | 100 |     |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Arg      | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |
|          |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ser      | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |
|          |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Phe      | Arg | Val | Tyr | Ser | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Leu | Tyr | Thr |
| 145      |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Gly      | Glu | Ala | Cys | Arg |     |     |     |     |     |     |     |     |     |     |     |
|          |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |     |

<210> 91  
 <211> 498  
 <212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(498)

<400> 91

|   |     |
|---|-----|
| atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa | 48  |
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |
| 1 5 10 15   |     |
| aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
| gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa | 144 |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
| gtt aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
| ttt cgc gtc tac ccc aac ttc ttg cgt ggc aaa ctg aaa ttt tat acg | 480 |
| Phe Arg Val Tyr Pro Asn Phe Leu Arg Gly Lys Leu Lys Phe Tyr Thr |     |
| 145 150 155 160   |     |
| ggt gag gct tgt cgc tga   | 498 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

<210> 92

<211> 165

<212> PRT

<213> Homo sapiens

<400> 92

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Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu
 1           5           10           15
Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys
          20           25           30
Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys
          35           40           45
Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val
          50           55           60
Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly
65           70           75           80
Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu
          85           90           95
His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu
          100          105          110
Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala
          115          120          125
Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu
          130          135          140
Phe Arg Val Tyr Pro Asn Phe Leu Arg Gly Lys Leu Lys Phe Tyr Thr
145          150          155          160
Gly Glu Ala Cys Arg
          165
```

<210> 93

<211> 498

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(498)

<400> 93

```
atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa      48
Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu
 1           5           10           15

aga cac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt      96
Arg His Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys
          20           25           30

gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat tcg aaa     144
Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Ser Lys
          35           40           45

gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg     192
Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val
          50           55           60

gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt     240
Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly
```

| 65  | 70  | 75  | 80  |     |
|---|-----|-----|-----|-----|
| caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg |     |     |     | 288 |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |     |     |     |
|   | 85  | 90  | 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc |     |     |     | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |     |     |     |
|   | 100 | 105 | 110 |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc |     |     |     | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |     |     |     |
|   | 115 | 120 | 125 |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg |     |     |     | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |     |     |     |
|   | 130 | 135 | 140 |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat aca |     |     |     | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |     |     |     |
|   | 145 | 150 | 155 | 160 |
| ggt gag gct tgt cgc tga   |     |     |     | 498 |
| Gly Glu Ala Cys Arg *   |     |     |     |     |
|   | 165 |     |     |     |

<210> 94  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 94

|   |     |     |     |     |
|---|-----|-----|-----|-----|
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |     |     |     |
| 1   | 5   | 10  | 15  |     |
| Arg His Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |     |     |     |     |
|   | 20  | 25  | 30  |     |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Ser Lys |     |     |     |     |
|   | 35  | 40  | 45  |     |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |     |     |     |
|   | 50  | 55  | 60  |     |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |     |     |     |
| 65  | 70  | 75  | 80  |     |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |     |     |     |
|   | 85  | 90  | 95  |     |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |     |     |     |
|   | 100 | 105 | 110 |     |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |     |     |     |
|   | 115 | 120 | 125 |     |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |     |     |     |
|   | 130 | 135 | 140 |     |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |     |     |     |
|   | 145 | 150 | 155 | 160 |
| Gly Glu Ala Cys Arg   |     |     |     |     |
|   | 165 |     |     |     |

<210> 95  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 95  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt 96  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 gca gaa aat tgc tca ctg aac gag att att act gta ccg gat acg aaa 144  
 Ala Glu Asn Cys Ser Leu Asn Glu Ile Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt 240  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 caa act tta ctg gta aat tcc agt cag act tgg gaa caa tta cag ttg 288  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Thr Trp Glu Gln Leu Gln Leu  
 85 90 95  
 cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc 336  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc 384  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg 432  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg 480  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160  
 ggt gag gct tgt cgc tga 498  
 Gly Glu Ala Cys Arg \*  
 165

<210> 96  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 96  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 Ala Glu Asn Cys Ser Leu Asn Glu Ile Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Thr Trp Glu Gln Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160  
 Gly Glu Ala Cys Arg  
 165

<210> 97  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 97  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt 96  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa 144  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Val | Asn | Phe | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |     |  |
| 50  |     |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |  |
| gaa | gtt | tgg | cag | ggg | ctt | gcc | ctg | ttg | tcg | gag | gca | gtc | ctg | cgg | ggg | 240 |  |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |     |  |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |     |  |
| caa | act | tta | ctg | gta | aat | tcc | agt | cag | cct | tgg | gaa | cca | tta | cag | ttg | 288 |  |
| Gln | Thr | Leu | Leu | Val | Asn | Ser | Ser | Gln | Pro | Trp | Glu | Pro | Leu | Gln | Leu |     |  |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |     |  |
| cac | gtg | gat | aag | gcg | gtt | tct | ggc | ctg | cgc | agc | ctt | acc | acg | ctg | ctc | 336 |  |
| His | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |     |  |
|     |     |     | 100 |     |     |     | 105 |     |     |     |     |     | 110 |     |     |     |  |
| cgt | gca | ctg | ggg | gcc | caa | aaa | gaa | gct | atc | tcg | ccg | cct | gac | gcg | gcc | 384 |  |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |     |  |
|     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |     |  |
| tca | gca | gcg | ccg | tta | cgc | act | att | aca | gcc | gat | acc | ttc | cgt | aaa | ctg | 432 |  |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |     |  |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |     |  |
| ttt | cgc | gtc | tac | tcc | aac | ttc | ttg | cgt | ggc | aaa | ctg | aaa | ttt | tat | acg | 480 |  |
| Phe | Arg | Val | Tyr | Ser | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Phe | Tyr | Thr |     |  |
| 145 |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     | 160 |     |     |  |
| ggg | gag | gct | tgt | cgc | tga |     |     |     |     |     |     |     |     |     |     | 498 |  |
| Gly | Glu | Ala | Cys | Arg | *   |     |     |     |     |     |     |     |     |     |     |     |  |
|     |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |     |     |  |

<210> 98  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 98  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu



|                     |                     |                         |  |     |
|---------------------|---------------------|-------------------------|--|-----|
| 130                 |                     | 135                     |  | 140 |
| Phe Arg Val Tyr Ser | Asn Phe Leu Arg Gly | Lys Leu Lys Phe Tyr Thr |  |     |
| 145                 | 150                 | 155                     |  | 160 |
| Gly Glu Ala Cys Arg |                     |                         |  |     |
|                     | 165                 |                         |  |     |

<210> 99  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 99

|   |     |
|---|-----|
| atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa | 48  |
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |
| 1 5 10 15   |     |
|   |     |
| aga tac ctg ctc gaa gcg aaa gag gct gaa att atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ile Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
|   |     |
| gca gaa cat tgc tca ctg aac gag aat att act gta cca gat acg aaa | 144 |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
|   |     |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
|   |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
|   |     |
| caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
|   |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
|   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
|   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
|   |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ttt tat acg | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Phe Tyr Thr |     |

145                      150                      155                      160

ggt gag gct tgt cgc tga                      498

Gly Glu Ala Cys Arg \*

165

<210> 100

<211> 165

<212> PRT

<213> Homo sapiens

<400> 100

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Ile | Ile | Thr | Thr | Gly | Cys |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |     |
| Ala | Glu | His | Cys | Ser | Leu | Asn | Glu | Asn | Ile | Thr | Val | Pro | Asp | Thr | Lys |
|     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Val | Asn | Phe | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Gln | Thr | Leu | Leu | Val | Asn | Ser | Ser | Gln | Pro | Trp | Glu | Pro | Leu | Gln | Leu |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| His | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Phe | Arg | Val | Tyr | Ser | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Phe | Tyr | Thr |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Gly | Glu | Ala | Cys | Arg |     |     |     |     |     |     |     |     |     |     |     |
|     |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |     |

<210> 101

<211> 498

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(498)

<400> 101

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| atg | gat | atc | gcc | ccg | ccc | cgt | ctg | att | tgc | gac | agc | agg | gtg | cta | gaa |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| aga | tac | ctg | ctc | gaa | gcg | aaa | gag | gct | gaa | aat | atc | acc | aca | ggc | tgt |
|     |     |     |     | 20  |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Asn | Ile | Thr | Thr | Gly | Cys |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

|   |     |
|---|-----|
| gta gaa cat tgc tca ctg aac gag att att act gta ccg gat ccg aaa | 144 |
| Val Glu His Cys Ser Leu Asn Glu Ile Ile Thr Val Pro Asp Pro Lys |     |
| 35 40 45  |     |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tgc gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tgc ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |
| 145 150 155 160   |     |
| ggt gag gct tgt cgc tga   | 498 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

<210> 102  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

|   |  |
|---|--|
| <400> 102   |  |
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |  |
| 1 5 10 15   |  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |  |
| 20 25 30  |  |
| Val Glu His Cys Ser Leu Asn Glu Ile Ile Thr Val Pro Asp Pro Lys |  |
| 35 40 45  |  |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |  |
| 50 55 60  |  |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |  |
| 65 70 75 80   |  |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |  |
| 85 90 95  |  |

His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160  
 Gly Glu Ala Cys Arg  
 165

<210> 103  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 103  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 aga tac ctg ctc gaa gcg aaa gag gct gaa agt atc acc aca ggc tgt 96  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ser Ile Thr Thr Gly Cys  
 20 25 30  
 gta gaa cat tgc tca ctg aac gag act att act gta ccg gat acg aaa 144  
 Val Glu His Cys Ser Leu Asn Glu Thr Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt 240  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 caa act tta ctg gta agt tcc agt cag cct tgg gaa cca tta cag ttg 288  
 Gln Thr Leu Leu Val Ser Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
 85 90 95  
 cac gtg gat aag gcg gtt tct ggc ctg tgc agc ttt acc acg ctg ctc 336  
 His Val Asp Lys Ala Val Ser Gly Leu Cys Ser Phe Thr Thr Leu Leu  
 100 105 110  
 cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc 384  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg 432

Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140

ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg 480  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160

ggg gag gct tgt cgc tga 498  
 Gly Glu Ala Cys Arg \*  
 165

<210> 104  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 104  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ser Ile Thr Thr Gly Cys  
 20 25 30  
 Val Glu His Cys Ser Leu Asn Glu Thr Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Ser Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Cys Ser Phe Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160  
 Gly Glu Ala Cys Arg  
 165

<210> 105  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 105  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15

|   |     |
|---|-----|
| aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
| gca gaa aat tgc tca ctg aac gag att att act gta ccg gat tcg aaa | 144 |
| Ala Glu Asn Cys Ser Leu Asn Glu Ile Ile Thr Val Pro Asp Ser Lys |     |
| 35 40 45  |     |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta aat tcc agt cag cct ggg gaa cta tta cag ttg | 288 |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Gly Glu Leu Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |
| 145 150 155 160   |     |
| ggt gag gct tgt cgc tga   | 498 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

<210> 106  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 106  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 Ala Glu Asn Cys Ser Leu Asn Glu Ile Ile Thr Val Pro Asp Ser Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val

|                     |                     |                         |     |     |     |
|---------------------|---------------------|-------------------------|-----|-----|-----|
| 50                  |                     | 55                      |     | 60  |     |
| Glu Val Trp Gln Gly | Leu Ala Leu Leu Ser | Glu Ala Val Leu Arg Gly |     |     |     |
| 65                  |                     | 70                      |     | 75  | 80  |
| Gln Thr Leu Leu Val | Asn Ser Ser Gln Pro | Gly Glu Leu Leu Gln Leu |     |     |     |
|                     | 85                  |                         | 90  |     | 95  |
| His Val Asp Lys Ala | Val Ser Gly Leu Arg | Ser Leu Thr Thr Leu Leu |     |     |     |
|                     | 100                 |                         | 105 |     | 110 |
| Arg Ala Leu Gly Ala | Gln Lys Glu Ala Ile | Ser Pro Pro Asp Ala Ala |     |     |     |
|                     | 115                 |                         | 120 |     | 125 |
| Ser Ala Ala Pro Leu | Arg Thr Ile Thr Ala | Asp Thr Phe Arg Lys Leu |     |     |     |
|                     | 130                 |                         | 135 |     | 140 |
| Phe Arg Val Tyr Ser | Asn Phe Leu Arg Gly | Lys Leu Lys Leu Tyr Thr |     |     |     |
| 145                 |                     | 150                     |     | 155 | 160 |
| Gly Glu Ala Cys Arg |                     |                         |     |     |     |
|                     | 165                 |                         |     |     |     |

<210> 107  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

|   |     |
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| <400> 107   |     |
| atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa | 48  |
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |
| 1 5 10 15   |     |
| aga tac ctg ctc gaa gcg aaa gag gct gaa att atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ile Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
| gga gaa gat tgc tca ctg aac gag aat att act gta ccg gat acg aaa | 144 |
| Gly Glu Asp Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| cg  | gt  | gca | ctg | gg  | t   | gcc | caa | aaa | gaa | gct | atc | tcg | ccg | cct | gac | gcg | gcc | 384 |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |     |     |     |
|     |     | 115 |     |     |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| tca | gca | gcg | ccg | tta | cgc | act | att | aca | gcc | gat | acc | ttc | cgt | aaa | ctg |     |     | 432 |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |     |     |     |
|     |     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| ttt | cgc | gtc | tac | tcc | aac | ttc | ttg | cgt | ggc | aaa | ctg | aaa | ctt | tat | acg |     |     | 480 |
| Phe | Arg | Val | Tyr | Ser | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Leu | Tyr | Thr |     |     |     |
|     |     | 145 |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| gg  | t   | gag | gct | tgt | cgc | tga |     |     |     |     |     |     |     |     |     |     |     | 498 |
| Gly | Glu | Ala | Cys | Arg | *   |     |     |     |     |     |     |     |     |     |     |     |     |     |
|     |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

<210> 108  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

|           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|
| <400> 108 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |
| Met       | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |  |  |  |
| 1         |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |  |  |  |
| Arg       | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Ile | Ile | Thr | Thr | Gly | Cys |  |  |  |
|           |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |     |  |  |  |
| Gly       | Glu | Asp | Cys | Ser | Leu | Asn | Glu | Asn | Ile | Thr | Val | Pro | Asp | Thr | Lys |  |  |  |
|           |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |  |  |  |
| Val       | Asn | Phe | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |  |  |  |
|           | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |  |  |  |
| Glu       | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |  |  |  |
| 65        |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |  |  |  |
| Gln       | Thr | Leu | Leu | Val | Asn | Ser | Ser | Gln | Pro | Trp | Glu | Pro | Leu | Gln | Leu |  |  |  |
|           |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |     |  |  |  |
| His       | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |  |  |  |
|           |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |     |  |  |  |
| Arg       | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |  |  |  |
|           |     | 115 |     |     |     |     | 120 |     |     |     |     |     | 125 |     |     |  |  |  |
| Ser       | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |  |  |  |
|           |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |  |  |  |
| Phe       | Arg | Val | Tyr | Ser | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Leu | Tyr | Thr |  |  |  |
| 145       |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |  |  |  |
| Gly       | Glu | Ala | Cys | Arg |     |     |     |     |     |     |     |     |     |     |     |  |  |  |
|           |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |     |  |  |  |

<210> 109  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)



<400> 109

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| atg | gat | atc | gcc | ccg | ccc | cgt | ctg | att | tgc | gac | agc | agg | gtg | cta | gaa | 48 |
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |    |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |    |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| aga | tac | ctg | ctc | gaa | gcg | aaa | gag | gct | gaa | agt | atc | acc | aca | ggc | tgt | 96 |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Ser | Ile | Thr | Thr | Gly | Cys |    |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |     |    |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| gaa | gaa | tat | tgc | tca | ctg | aac | gag | aat | att | act | gta | ccg | gat | acg | aaa | 144 |
| Glu | Glu | Tyr | Cys | Ser | Leu | Asn | Glu | Asn | Ile | Thr | Val | Pro | Asp | Thr | Lys |     |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| gtc | agc | ttg | tat | gcc | tgg | aaa | cga | atg | gaa | gtt | gga | caa | cag | gcg | gtg | 192 |
| Val | Ser | Leu | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |     |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| gaa | gtt | tgg | cag | ggg | ctt | gcc | ctg | ttg | tcg | gag | gca | gtc | ctg | cgg | ggc | 240 |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |     |
|     | 65  |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| caa | act | tta | ctg | gta | aat | tcc | agt | cag | cct | ggg | gaa | cta | tta | cag | ttg | 288 |
| Gln | Thr | Leu | Leu | Val | Asn | Ser | Ser | Gln | Pro | Gly | Glu | Leu | Leu | Gln | Leu |     |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| cac | gtg | gat | aag | gcg | gtt | tct | ggc | ctg | cgc | agc | ctt | acc | acg | ctg | ctc | 336 |
| His | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |     |
|     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| cgt | gca | ctg | ggc | gcc | caa | aaa | gaa | gct | atc | tcg | ccg | cct | gac | gcg | gcc | 384 |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |     |
|     | 115 |     |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| tca | gca | gcg | ccg | tta | cgc | act | att | aca | gcc | gat | acc | ttc | cgt | aaa | ctg | 432 |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |     |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| ttt | cgc | gtc | tac | acc | aac | ttc | ttg | cgt | ggc | aaa | ctg | aaa | ctt | tat | acg | 480 |
| Phe | Arg | Val | Tyr | Thr | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Leu | Tyr | Thr |     |
|     | 145 |     |     |     | 150 |     |     |     | 155 |     |     |     |     | 160 |     |     |

|     |     |     |     |     |     |  |  |  |  |  |  |  |  |  |  |     |
|-----|-----|-----|-----|-----|-----|--|--|--|--|--|--|--|--|--|--|-----|
| ggc | gag | gct | tgt | cgc | tga |  |  |  |  |  |  |  |  |  |  | 498 |
| Gly | Glu | Ala | Cys | Arg | *   |  |  |  |  |  |  |  |  |  |  |     |
|     |     |     | 165 |     |     |  |  |  |  |  |  |  |  |  |  |     |

<210> 110

<211> 165

<212> PRT

<213> Homo sapiens

<400> 110

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |

Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ser Ile Thr Thr Gly Cys  
                   20                  25                  30  
 Glu Glu Tyr Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
                   35                  40                  45  
 Val Ser Leu Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
                   50                  55                  60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65                  70                  75                  80  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Gly Glu Leu Leu Gln Leu  
                   85                  90                  95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
                   100                  105                  110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
                   115                  120                  125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
                   130                  135                  140  
 Phe Arg Val Tyr Thr Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145                  150                  155                  160  
 Gly Glu Ala Cys Arg  
                   165

<210> 111  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 111  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
   1                  5                  10                  15  
  
 aga tac ctg ctc gaa gcg aaa gag gct gaa act atc acc aca ggc tgt 96  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Thr Ile Thr Thr Gly Cys  
                   20                  25                  30  
  
 gga gaa gat tgc tca ctg aac gag aat att act gta ccg gat acg aaa 144  
 Gly Glu Asp Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
                   35                  40                  45  
  
 gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
                   50                  55                  60  
  
 gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt 240  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
                   65                  70                  75                  80  
  
 caa act tta ctg gta att tcc agt cag cct tgg gaa cca tta cag ttg 288  
 Gln Thr Leu Leu Val Ile Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
                   85                  90                  95

cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc 336  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
  
 cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc 384  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
  
 tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg 432  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
  
 ttt cgc gtc tac gcc aac ttc ttg cgt ggc aaa ctg aaa gtt tat acg 480  
 Phe Arg Val Tyr Ala Asn Phe Leu Arg Gly Lys Leu Lys Val Tyr Thr  
 145 150 155 160  
  
 ggt gag gct tgt cgc tga 498  
 Gly Glu Ala Cys Arg \*  
 165

<210> 112  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 112  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Thr Ile Thr Thr Gly Cys  
 20 25 30  
 Gly Glu Asp Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Ile Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 Phe Arg Val Tyr Ala Asn Phe Leu Arg Gly Lys Leu Lys Val Tyr Thr  
 145 150 155 160  
 Gly Glu Ala Cys Arg  
 165

<210> 113  
 <211> 498  
 <212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(498)

<400> 113

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atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa      48
Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu
  1             5             10             15

aga tac ctg ctc gaa gcg aaa gag gct gaa act atc acc aca ggc tgt      96
Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Thr Ile Thr Thr Gly Cys
          20             25             30

gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa     144
Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys
          35             40             45

gtc aac ctt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg     192
Val Asn Leu Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val
          50             55             60

gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt     240
Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly
          65             70             75             80

caa act tta ctg gta agt tcc agt cag cct tgg gaa cca tta cag ttg     288
Gln Thr Leu Leu Val Ser Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu
          85             90             95

cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc     336
His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu
          100             105             110

cgt gca ctg ggt gcc caa aaa gaa gtt atc tcg ccg cct gac gcg gcc     384
Arg Ala Leu Gly Ala Gln Lys Glu Val Ile Ser Pro Pro Asp Ala Ala
          115             120             125

tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg     432
Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu
          130             135             140

ttt cgc gtc tac ccc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg     480
Phe Arg Val Tyr Pro Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr
          145             150             155             160

ggg gag gct tgt cgc tga                                           498
Gly Glu Ala Cys Arg  *
          165
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<210> 114

<211> 165

<212> PRT

<213> Homo sapiens

<400> 114

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |  |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |  |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Thr | Ile | Thr | Thr | Gly | Cys |  |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |  |
| Ala | Glu | His | Cys | Ser | Leu | Asn | Glu | Asn | Ile | Thr | Val | Pro | Asp | Thr | Lys |  |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     |     | 45  |     |     |  |
| Val | Asn | Leu | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |  |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |  |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |  |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |  |
| Gln | Thr | Leu | Leu | Val | Ser | Ser | Ser | Gln | Pro | Trp | Glu | Pro | Leu | Gln | Leu |  |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |  |
| His | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |  |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |  |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Val | Ile | Ser | Pro | Pro | Asp | Ala | Ala |  |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     |     | 125 |     |     |  |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |  |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |  |
| Phe | Arg | Val | Tyr | Pro | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Leu | Tyr | Thr |  |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |  |
| Gly | Glu | Ala | Cys | Arg |     |     |     |     |     |     |     |     |     |     |     |  |
|     |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |     |  |

<210> 115

<211> 498

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(498)

<400> 115

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| atg | gat | atc | gcc | ccg | ccc | cgt | ctg | att | tgc | gac | agc | agg | gtg | cta | gaa | 48  |
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |     |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |     |
| aga | tac | ctg | ctc | gaa | gcg | aaa | gag | gct | gaa | att | atc | acc | aca | ggc | tgt | 96  |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Ile | Ile | Thr | Thr | Gly | Cys |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |     |
| gta | gaa | tat | tgc | tca | ctg | aac | gag | aat | att | act | gta | ccg | gat | acg | aaa | 144 |
| Val | Glu | Tyr | Cys | Ser | Leu | Asn | Glu | Asn | Ile | Thr | Val | Pro | Asp | Thr | Lys |     |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| gtc | aac | ttt | tat | gcc | tgg | aaa | cga | atg | gaa | gtt | gga | caa | cag | gcg | gtg | 192 |
| Val | Asn | Phe | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |     |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |
| gaa | gtt | tgg | cag | ggg | ctt | gcc | ctg | ttg | tcg | gag | gca | gtc | ctg | cgg | ggg | 240 |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |     |

| 65  | 70  | 75 | 80 |  |
|---|-----|----|----|--|
| caa act tta ctg gta aat tcc agt cag gct ggg gaa cga tta cag ttg | 288 |    |    |  |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Ala Gly Glu Arg Leu Gln Leu |     |    |    |  |
| 85 90 95  |     |    |    |  |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |    |    |  |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |    |    |  |
| 100 105 110   |     |    |    |  |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 384 |    |    |  |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |    |    |  |
| 115 120 125   |     |    |    |  |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |    |    |  |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |    |    |  |
| 130 135 140   |     |    |    |  |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg | 480 |    |    |  |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |    |    |  |
| 145 150 155 160   |     |    |    |  |
| ggt gag gct tgt cgc tga   | 498 |    |    |  |
| Gly Glu Ala Cys Arg *   |     |    |    |  |
| 165   |     |    |    |  |

<210> 116  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 116

|   |  |
|---|--|
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |  |
| 1 5 10 15   |  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ile Ile Thr Thr Gly Cys |  |
| 20 25 30  |  |
| Val Glu Tyr Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |  |
| 35 40 45  |  |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |  |
| 50 55 60  |  |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |  |
| 65 70 75 80   |  |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Ala Gly Glu Arg Leu Gln Leu |  |
| 85 90 95  |  |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |  |
| 100 105 110   |  |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |  |
| 115 120 125   |  |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |  |
| 130 135 140   |  |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |  |
| 145 150 155 160   |  |
| Gly Glu Ala Cys Arg   |  |
| 165   |  |

<210> 117  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 117  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 aga tac ctg ctc gaa gcg aaa gag gct gaa agt atc acc aca ggc tgt 96  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ser Ile Thr Thr Gly Cys  
 20 25 30  
 gga gaa cat tgc tca ctg aac gag act att act gta ccg gat tcg aaa 144  
 Gly Glu His Cys Ser Leu Asn Glu Thr Ile Thr Val Pro Asp Ser Lys  
 35 40 45  
 gtc aac gtt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192  
 Val Asn Val Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 gaa gtt tgg cag ggg ctt gcc ctg ttg tgc gag gca gtc ctg cgg ggt 240  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg 288  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
 85 90 95  
 cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc 336  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 cgt gca ctg ggt gcc caa aaa gaa gct atc tgc ccg cct gac gcg gcc 384  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg 432  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa gtt tat acg 480  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Val Tyr Thr  
 145 150 155 160  
 ggt gag gct tgt cgc tga 498  
 Gly Glu Ala Cys Arg \*  
 165

<210> 118  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 118  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ser Ile Thr Thr Gly Cys  
 20 25 30  
 Gly Glu His Cys Ser Leu Asn Glu Thr Ile Thr Val Pro Asp Ser Lys  
 35 40 45  
 Val Asn Val Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Val Tyr Thr  
 145 150 155 160  
 Gly Glu Ala Cys Arg  
 165

<210> 119  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 119  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt 96  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 gca gaa cat tgc tca ctg aac gag agt att act gta ccg gat tcg aaa 144  
 Ala Glu His Cys Ser Leu Asn Glu Ser Ile Thr Val Pro Asp Ser Lys  
 35 40 45  
 gtc aac ttg tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192



|   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Val   | Asn | Leu | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |  |  |
| 50  |     |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |  |  |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt 240 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Glu   | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |  |  |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |  |  |
| caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg 288 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Gln   | Thr | Leu | Leu | Val | Asn | Ser | Ser | Gln | Pro | Trp | Glu | Pro | Leu | Gln | Leu |  |  |
|   |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |  |  |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc 336 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| His   | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |  |  |
|   |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |     |  |  |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc 384 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Arg   | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |  |  |
|   |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |  |  |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg 432 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Ser   | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |  |  |
|   |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |  |  |
| ttt cgc gtc tac gcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg 480 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Phe   | Arg | Val | Tyr | Ala | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Leu | Tyr | Thr |  |  |
| 145   |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |  |  |
| ggt gag gct tgt cgc tga 498   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Gly   | Glu | Ala | Cys | Arg | *   |     |     |     |     |     |     |     |     |     |     |  |  |
|   |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |     |  |  |

<210> 120  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 120

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |  |  |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |  |  |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Asn | Ile | Thr | Thr | Gly | Cys |  |  |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |     |  |  |
| Ala | Glu | His | Cys | Ser | Leu | Asn | Glu | Ser | Ile | Thr | Val | Pro | Asp | Ser | Lys |  |  |
|     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |  |  |
| Val | Asn | Leu | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |  |  |
| 50  |     |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |  |  |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |  |  |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |  |  |
| Gln | Thr | Leu | Leu | Val | Asn | Ser | Ser | Gln | Pro | Trp | Glu | Pro | Leu | Gln | Leu |  |  |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |  |  |
| His | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |  |  |
|     |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |     |  |  |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |  |  |
|     |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |  |  |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |  |  |

|                     |                     |                         |     |     |
|---------------------|---------------------|-------------------------|-----|-----|
| 130                 |                     | 135                     |     | 140 |
| Phe Arg Val Tyr Ala | Asn Phe Leu Arg Gly | Lys Leu Lys Leu Tyr Thr |     |     |
| 145                 | 150                 | 155                     | 160 |     |
| Gly Glu Ala Cys Arg |                     |                         |     |     |
|                     | 165                 |                         |     |     |

<210> 121  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 121

|   |     |
|---|-----|
| atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa | 48  |
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |
| 1 5 10 15   |     |
| aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
| gca gaa gat tgc tca ctg aac gag aat att act gta ccg gat acg aaa | 144 |
| Ala Glu Asp Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
| ttt cgc gtc tac acc aac ttc ttg cgt ggc aaa ctg aaa ttt tat acg | 480 |
| Phe Arg Val Tyr Thr Asn Phe Leu Arg Gly Lys Leu Lys Phe Tyr Thr |     |

145                      150                      155                      160

ggt gag gct tgt cgc tga                      498

Gly Glu Ala Cys Arg \*

165

<210> 122

<211> 165

<212> PRT

<213> Homo sapiens

<400> 122

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Asn | Ile | Thr | Thr | Gly | Cys |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |     |
| Ala | Glu | Asp | Cys | Ser | Leu | Asn | Glu | Asn | Ile | Thr | Val | Pro | Asp | Thr | Lys |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Val | Asn | Phe | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Gln | Thr | Leu | Leu | Val | Asn | Ser | Ser | Gln | Pro | Trp | Glu | Pro | Leu | Gln | Leu |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| His | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |
|     |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |     |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |
|     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Phe | Arg | Val | Tyr | Thr | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Phe | Tyr | Thr |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Gly | Glu | Ala | Cys | Arg |     |     |     |     |     |     |     |     |     |     |     |
|     |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |     |

<210> 123

<211> 498

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(498)

<400> 123

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| atg | gat | atc | gcc | ccg | ccc | cgt | ctg | att | tgc | gac | agc | agg | gtg | cta | gaa |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| aga | tac | ctg | ctc | gaa | gcg | aaa | gag | gct | gaa | att | atc | acc | aca | ggc | tgt |
|     |     |     |     | 20  |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Ile | Ile | Thr | Thr | Gly | Cys |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

|   |     |
|---|-----|
| gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa | 144 |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tgc gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta aat tcc agt cag cct cgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Arg Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tgc ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |
| 145 150 155 160   |     |
| ggg gag gct tgt cgc tga   | 498 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

<210> 124  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 124  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ile Ile Thr Thr Gly Cys  
 20 25 30  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Arg Glu Pro Leu Gln Leu  
 85 90 95

His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
                   100                                  105                                  110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
                   115                                  120                                  125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
                   130                                  135                                  140  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145                                  150                                  155                                  160  
 Gly Glu Ala Cys Arg  
                                   165

<210> 125  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 125  
 atg gat atc gcc tcg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Ser Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
   1                                  5                                  10                                  15  
  
 aga tac ctg ctc gaa gcg aaa gag gct gaa agt atc acc aca ggc tgt 96  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ser Ile Thr Thr Gly Cys  
                                   20                                  25                                  30  
  
 gta gaa gat tgc tca ctg aac gag aat att act gta ccg gat acg aaa 144  
 Val Glu Asp Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
                                   35                                  40                                  45  
  
 gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
                                   50                                  55                                  60  
  
 gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt 240  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
   65                                  70                                  75                                  80  
  
 caa act tta ctg gta agt tcc agt cag cct tgg gaa cca tta cag ttg 288  
 Gln Thr Leu Leu Val Ser Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
                                   85                                  90                                  95  
  
 cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc 336  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
                                   100                                  105                                  110  
  
 cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc 384  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
                                   115                                  120                                  125  
  
 tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg 432

Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140

ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg 480  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160

ggg gag gct tgt cgc tga 498  
 Gly Glu Ala Cys Arg \*  
 165

<210> 126  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 126  
 Met Asp Ile Ala Ser Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ser Ile Thr Thr Gly Cys  
 20 25 30  
 Val Glu Asp Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Ser Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160  
 Gly Glu Ala Cys Arg  
 165

<210> 127  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 127  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15

|   |     |
|---|-----|
| aga tac ctg ctc gaa gcg aaa gag gct gaa att atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ile Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
| gca gaa tat tgc tca ctg aac gag aat att act gta ccg gat acg aaa | 144 |
| Ala Glu Tyr Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
| ttt cgc gtc tac ccc aac ttc ttg cgt ggc aaa ctg aaa att tat acg | 480 |
| Phe Arg Val Tyr Pro Asn Phe Leu Arg Gly Lys Leu Lys Ile Tyr Thr |     |
| 145 150 155 160   |     |
| ggt gag gct tgt cgc tga   | 498 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

<210> 128

<211> 165

<212> PRT

<213> Homo sapiens

<400> 128

|   |  |
|---|--|
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |  |
| 1 5 10 15   |  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ile Ile Thr Thr Gly Cys |  |
| 20 25 30  |  |
| Ala Glu Tyr Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |  |
| 35 40 45  |  |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |  |

|                         |                     |                         |     |     |     |
|-------------------------|---------------------|-------------------------|-----|-----|-----|
| 50                      |                     | 55                      |     | 60  |     |
| Glu Val Trp Gln Gly     | Leu Ala Leu Leu Ser | Glu Ala Val Leu Arg Gly |     |     |     |
| 65                      |                     | 70                      |     | 75  | 80  |
| Gln Thr Leu Leu Val     | Asn Ser Ser Gln Pro | Trp Glu Pro Leu Gln Leu |     |     |     |
|                         | 85                  |                         | 90  |     | 95  |
| His Val Asp Lys Ala Val | Ser Gly Leu Arg Ser | Leu Thr Thr Leu Leu     |     |     |     |
|                         | 100                 |                         | 105 |     | 110 |
| Arg Ala Leu Gly Ala Gln | Lys Glu Ala Ile Ser | Pro Pro Asp Ala Ala     |     |     |     |
|                         | 115                 |                         | 120 |     | 125 |
| Ser Ala Ala Pro Leu Arg | Thr Ile Thr Ala Asp | Thr Phe Arg Lys Leu     |     |     |     |
|                         | 130                 |                         | 135 |     | 140 |
| Phe Arg Val Tyr Pro Asn | Phe Leu Arg Gly Lys | Leu Lys Ile Tyr Thr     |     |     |     |
| 145                     |                     | 150                     |     | 155 | 160 |
| Gly Glu Ala Cys Arg     |                     |                         |     |     |     |
|                         | 165                 |                         |     |     |     |

<210> 129  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

|   |     |
|---|-----|
| <400> 129   |     |
| atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa | 48  |
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |
| 1 5 10 15   |     |
| aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
| gta gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa | 144 |
| Val Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg caa ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta act tcc agt cag cct tgg gaa tca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Thr Ser Ser Gln Pro Trp Glu Ser Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |



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cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc 384
Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala
      115                      120                      125

tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg 432
Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu
      130                      135                      140

ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg 480
Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr
      145                      150                      155                      160

ggg gag gct tgt cgc tga 498
Gly Glu Ala Cys Arg *
      165

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<210> 130
<211> 165
<212> PRT
<213> Homo sapiens

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<400> 130
Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu
 1      5      10      15
Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys
      20      25      30
Val Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys
      35      40      45
Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val
      50      55      60
Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly
      65      70      75      80
Gln Thr Leu Leu Val Thr Ser Ser Gln Pro Trp Glu Ser Leu Gln Leu
      85      90      95
His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu
      100      105      110
Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala
      115      120      125
Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu
      130      135      140
Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr
      145      150      155      160
Gly Glu Ala Cys Arg
      165

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<210> 131
<211> 498
<212> DNA
<213> Homo sapiens

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<220>
<221> CDS
<222> (1)...(498)

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<400> 131  
atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
1 5 10 15

aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt 96  
Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
20 25 30

gaa gaa tat tgc tca ctg aac gag aat att act gta ccg gat gcg aaa 144  
Glu Glu Tyr Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Ala Lys  
35 40 45

gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192  
Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
50 55 60

gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt 240  
Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
65 70 75 80

caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg 288  
Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
85 90 95

cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc 336  
His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
100 105 110

cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc 384  
Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
115 120 125

tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg 432  
Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
130 135 140

ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg 480  
Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
145 150 155 160

ggg gag gct tgt cgc tga 498  
Gly Glu Ala Cys Arg \*  
165

<210> 132  
<211> 165  
<212> PRT  
<213> Homo sapiens

<400> 132  
Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
1 5 10 15

Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
                   20                  25                  30  
 Glu Glu Tyr Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Ala Lys  
                   35                  40                  45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
                   50                  55                  60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65                  70                  75                  80  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
                   85                  90                  95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
                   100                  105                  110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
                   115                  120                  125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
                   130                  135                  140  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145                  150                  155                  160  
 Gly Glu Ala Cys Arg  
                   165

<210> 133  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 133  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
   1                  5                  10                  15  
  
 aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt 96  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
                   20                  25                  30  
  
 gca gaa gat tgc tca ctg aac gag aat att act gta ccg gat acg aaa 144  
 Ala Glu Asp Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
                   35                  40                  45  
  
 gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
                   50                  55                  60  
  
 gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt 240  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
                   65                  70                  75                  80  
  
 caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg 288  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
                   85                  90                  95

cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc 336  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
  
 cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc 384  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
  
 tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg 432  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
  
 ttt cgc gtc tac acc aac ttc ttg cgt ggc aaa ctg aaa ttt tat acg 480  
 Phe Arg Val Tyr Thr Asn Phe Leu Arg Gly Lys Leu Lys Phe Tyr Thr  
 145 150 155 160  
  
 ggt gag gct tgt cgc tga 498  
 Gly Glu Ala Cys Arg \*  
 165

<210> 134  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 134  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 Ala Glu Asp Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 Phe Arg Val Tyr Thr Asn Phe Leu Arg Gly Lys Leu Lys Phe Tyr Thr  
 145 150 155 160  
 Gly Glu Ala Cys Arg  
 165

<210> 135  
 <211> 498  
 <212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(498)

<400> 135

|   |     |
|---|-----|
| atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa | 48  |
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |
| 1 5 10 15   |     |
| aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
| gca gaa tat tgc tca ctg aac gag agt att act gta ccg gat tcg aaa | 144 |
| Ala Glu Tyr Cys Ser Leu Asn Glu Ser Ile Thr Val Pro Asp Ser Lys |     |
| 35 40 45  |     |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta agt tcc agt cag cct ggg gaa caa tta cag ttg | 288 |
| Gln Thr Leu Leu Val Ser Ser Ser Gln Pro Gly Glu Gln Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
| ttt cgc gtc tac gcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg | 480 |
| Phe Arg Val Tyr Ala Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |
| 145 150 155 160   |     |
| ggt gag gct tgt cgc tga   | 498 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

<210> 136

<211> 165

<212> PRT

<213> Homo sapiens

<400> 136

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Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu
 1           5           10           15
Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys
           20           25           30
Ala Glu Tyr Cys Ser Leu Asn Glu Ser Ile Thr Val Pro Asp Ser Lys
           35           40           45
Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val
           50           55           60
Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly
65           70           75           80
Gln Thr Leu Leu Val Ser Ser Ser Gln Pro Gly Glu Gln Leu Gln Leu
           85           90           95
His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu
           100          105          110
Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala
           115          120          125
Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu
           130          135          140
Phe Arg Val Tyr Ala Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr
145          150          155          160
Gly Glu Ala Cys Arg
           165
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<210> 137

<211> 498

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(498)

<400> 137

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atg gat atc gcc ccg ccc cgt ctg att tgc gac agc aag gtg cta gaa      48
Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Lys Val Leu Glu
 1           5           10           15

aga tac ctg ctc gaa gcg aaa gag gct gaa att atc acc aca ggc tgt      96
Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ile Ile Thr Thr Gly Cys
           20           25           30

gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa     144
Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys
           35           40           45

gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg     192
Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val
           50           55           60

gaa gtt tgg cag ggg ctt gcc ctg ttg tgc gag gca gtc ctg cgg ggt     240
Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly
```

| 65  | 70  | 75  | 80  |     |
|---|-----|-----|-----|-----|
| caa act tta ctg gta aat tcc agt cag act tgg gaa cta tta cag ttg |     |     |     | 288 |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Thr Trp Glu Leu Leu Gln Leu |     |     |     |     |
|   | 85  | 90  | 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc |     |     |     | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |     |     |     |
|   | 100 | 105 | 110 |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc |     |     |     | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |     |     |     |
|   | 115 | 120 | 125 |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg |     |     |     | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |     |     |     |
|   | 130 | 135 | 140 |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg |     |     |     | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |     |     |     |
|   | 145 | 150 | 155 | 160 |
| ggg gag gct tgt cgc tga   |     |     |     | 498 |
| Gly Glu Ala Cys Arg *   |     |     |     |     |
|   | 165 |     |     |     |

<210> 138  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 138 .

|   |     |     |     |  |
|---|-----|-----|-----|--|
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Lys Val Leu Glu |     |     |     |  |
| 1   | 5   | 10  | 15  |  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ile Ile Thr Thr Gly Cys |     |     |     |  |
|   | 20  | 25  | 30  |  |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |     |     |  |
|   | 35  | 40  | 45  |  |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |     |     |  |
|   | 50  | 55  | 60  |  |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |     |     |  |
| 65  | 70  | 75  | 80  |  |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Thr Trp Glu Leu Leu Gln Leu |     |     |     |  |
|   | 85  | 90  | 95  |  |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |     |     |  |
|   | 100 | 105 | 110 |  |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |     |     |  |
|   | 115 | 120 | 125 |  |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |     |     |  |
|   | 130 | 135 | 140 |  |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |     |     |  |
| 145   | 150 | 155 | 160 |  |
| Gly Glu Ala Cys Arg   |     |     |     |  |
|   | 165 |     |     |  |

<210> 139  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 139  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt 96  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 gta gaa gat tgc tca ctg aac gag act att act gta ccg gat acg aaa 144  
 Val Glu Asp Cys Ser Leu Asn Glu Thr Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt 240  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 caa act tta ctg gta act tcc agt cag gct cgg gaa caa tta cag ttg 288  
 Gln Thr Leu Leu Val Thr Ser Ser Gln Ala Arg Glu Gln Leu Gln Leu  
 85 90 95  
 cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc 336  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc 384  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg 432  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa att tat acg 480  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Ile Tyr Thr  
 145 150 155 160  
 ggt gag gct tgt cgc tga 498  
 Gly Glu Ala Cys Arg \*  
 165



<210> 140  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 140  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 Val Glu Asp Cys Ser Leu Asn Glu Thr Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Thr Ser Ser Gln Ala Arg Glu Gln Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Ile Tyr Thr  
 145 150 155 160  
 Gly Glu Ala Cys Arg  
 165

<210> 141  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 141  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt 96  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 gca gaa cat tgc tca ctg aac gag agt att act gta ccg gat acg aaa 144  
 Ala Glu His Cys Ser Leu Asn Glu Ser Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Val | Asn | Phe | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |     |  |
| 50  |     |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |  |
| gaa | gtt | tgg | cag | ggg | ctt | gcc | ctg | ttg | tcg | gag | gca | gtc | ctg | cgg | ggg | 240 |  |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |     |  |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |     |  |
| caa | act | tta | ctg | gta | aat | tcc | agt | cag | cct | tgg | gaa | cca | tta | cag | ttg | 288 |  |
| Gln | Thr | Leu | Leu | Val | Asn | Ser | Ser | Gln | Pro | Trp | Glu | Pro | Leu | Gln | Leu |     |  |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |     |  |
| cac | gtg | gat | aag | gcg | gtt | tct | ggc | ctg | cgc | agc | ctt | acc | acg | ctg | ctc | 336 |  |
| His | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |     |  |
|     |     |     | 100 |     |     |     | 105 |     |     |     |     |     | 110 |     |     |     |  |
| cgt | gca | ctg | ggg | gcc | caa | aaa | gaa | gct | atc | tcg | ccg | cct | gac | gcg | gcc | 384 |  |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |     |  |
|     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |     |  |
| tca | gca | gcg | ccg | tta | cgc | act | att | aca | gcc | gat | acc | ttc | cg  | aaa | ctg | 432 |  |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |     |  |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |     |  |
| ttt | cg  | gtc | tac | tcc | aac | ttc | ttg | cg  | ggc | aaa | ctg | aaa | ttt | tat | acg | 480 |  |
| Phe | Arg | Val | Tyr | Ser | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Phe | Tyr | Thr |     |  |
| 145 |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     | 160 |     |     |  |
| ggg | gag | gct | tgt | cg  | tga |     |     |     |     |     |     |     |     |     |     | 498 |  |
| Gly | Glu | Ala | Cys | Arg | *   |     |     |     |     |     |     |     |     |     |     |     |  |
|     |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |     |     |  |

<210> 142  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 142  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 Ala Glu His Cys Ser Leu Asn Glu Ser Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu

|                     |                     |                         |     |     |
|---------------------|---------------------|-------------------------|-----|-----|
| 130                 |                     | 135                     |     | 140 |
| Phe Arg Val Tyr Ser | Asn Phe Leu Arg Gly | Lys Leu Lys Phe Tyr Thr |     |     |
| 145                 | 150                 | 155                     | 160 |     |
| Gly Glu Ala Cys Arg |                     |                         |     |     |
|                     | 165                 |                         |     |     |

<210> 143  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 143

|   |     |
|---|-----|
| atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa | 48  |
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |
| 1 5 10 15   |     |
|   |     |
| aga tac ctg ctc gaa gcg aaa gag gct gaa act atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Thr Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
|   |     |
| gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa | 144 |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
|   |     |
| gtc aac ttt tat gcc cgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Arg Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
|   |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tgc gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
|   |     |
| caa act tta ctg gta act tcc agt cag gct tgg gaa cga tta cag ttg | 288 |
| Gln Thr Leu Leu Val Thr Ser Ser Gln Ala Trp Glu Arg Leu Gln Leu |     |
| 85 90 95  |     |
|   |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
|   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tgc ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
|   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
|   |     |
| ttt cgc gtc tac ccc aac ttc ttg cgt ggc aaa ctg aaa gtt tat acg | 480 |
| Phe Arg Val Tyr Pro Asn Phe Leu Arg Gly Lys Leu Lys Val Tyr Thr |     |

145                      150                      155                      160

ggt gag gct tgt cgc tga                      498

Gly Glu Ala Cys Arg \*

165

<210> 144

<211> 165

<212> PRT

<213> Homo sapiens

<400> 144

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Thr | Ile | Thr | Thr | Gly | Cys |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |     |
| Ala | Glu | His | Cys | Ser | Leu | Asn | Glu | Asn | Ile | Thr | Val | Pro | Asp | Thr | Lys |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| Val | Asn | Phe | Tyr | Ala | Arg | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Gln | Thr | Leu | Leu | Val | Thr | Ser | Ser | Gln | Ala | Trp | Glu | Arg | Leu | Gln | Leu |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| His | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |
|     |     |     | 100 |     |     |     | 105 |     |     |     |     |     | 110 |     |     |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |
|     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Phe | Arg | Val | Tyr | Pro | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Val | Tyr | Thr |
| 145 |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     | 160 |     |
| Gly | Glu | Ala | Cys | Arg |     |     |     |     |     |     |     |     |     |     |     |
|     |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |     |

<210> 145

<211> 498

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(498)

<400> 145

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| atg | gat | atc | gcc | ccg | ccc | cgt | ctg | att | tgc | gac | agc | agg | gtg | cta | gaa |
| 1   |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |     |
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| aga | tac | ctg | ctc | gaa | gcg | aaa | gag | gct | gaa | act | atc | acc | aca | ggc | tgt |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Thr | Ile | Thr | Thr | Gly | Cys |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |     |

|   |     |
|---|-----|
| gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa | 144 |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tgc gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta att tcc agt cag cct tgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Ile Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tgc ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |
| 145 150 155 160   |     |
| ggg gag gct tgt cgc tga   | 498 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

<210> 146  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 146

|   |  |
|---|--|
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |  |
| 1 5 10 15   |  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Thr Ile Thr Thr Gly Cys |  |
| 20 25 30  |  |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |  |
| 35 40 45  |  |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |  |
| 50 55 60  |  |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |  |
| 65 70 75 80   |  |
| Gln Thr Leu Leu Val Ile Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |  |
| 85 90 95  |  |

His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
                   100                                  105                                  110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
                   115                                  120                                  125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
                   130                                  135                                  140  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145                                  150                                  155                                  160  
 Gly Glu Ala Cys Arg  
                                   165

<210> 147  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 147  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
   1                                  5                                  10                                  15  
  
 aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt 96  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
                                   20                                  25                                  30  
  
 gta gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa 144  
 Val Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
                                   35                                  40                                  45  
  
 gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
                                   50                                  55                                  60  
  
 gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cag ggt 240  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Gln Gly  
                                   65                                  70                                  75                                  80  
  
 caa act tta ctg gta aat tcc agt cag cct tgg gaa cta tta cag ttg 288  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Leu Leu Gln Leu  
                                   85                                  90                                  95  
  
 cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc 336  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
                                   100                                  105                                  110  
  
 cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc 384  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
                                   115                                  120                                  125  
  
 tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg 432

Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140

ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg 480  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160

ggt gag gct tgt cgc tga 498  
 Gly Glu Ala Cys Arg \*  
 165

<210> 148  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 148  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 Val Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Gln Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Leu Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160  
 Gly Glu Ala Cys Arg  
 165

<210> 149  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 149  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15

|   |     |
|---|-----|
| aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
| gca gaa cat tgc tca ctg aac gag agt att act gta ccg gat acg aaa | 144 |
| Ala Glu His Cys Ser Leu Asn Glu Ser Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |
| 145 150 155 160   |     |
| ggg gag gct tgt cgc tga   | 498 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

<210> 150  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 150  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 Ala Glu His Cys Ser Leu Asn Glu Ser Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val



|                         |                     |                         |  |     |
|-------------------------|---------------------|-------------------------|--|-----|
| 50                      |                     | 55                      |  | 60  |
| Glu Val Trp Gln Gly     | Leu Ala Leu Leu Ser | Glu Ala Val Leu Arg Gly |  |     |
| 65                      |                     | 70                      |  | 80  |
| Gln Thr Leu Leu Val     | Asn Ser Ser Gln Pro | Trp Glu Pro Leu Gln Leu |  |     |
|                         | 85                  | 90                      |  | 95  |
| His Val Asp Lys Ala Val | Ser Gly Leu Arg Ser | Leu Thr Thr Leu Leu     |  |     |
|                         | 100                 | 105                     |  | 110 |
| Arg Ala Leu Gly Ala Gln | Lys Glu Ala Ile Ser | Pro Pro Asp Ala Ala     |  |     |
|                         | 115                 | 120                     |  | 125 |
| Ser Ala Ala Pro Leu Arg | Thr Ile Thr Ala Asp | Thr Phe Arg Lys Leu     |  |     |
|                         | 130                 | 135                     |  | 140 |
| Phe Arg Val Tyr Ser Asn | Phe Leu Arg Gly Lys | Leu Lys Leu Tyr Thr     |  |     |
| 145                     | 150                 | 155                     |  | 160 |
| Gly Glu Ala Cys Arg     |                     |                         |  |     |
|                         | 165                 |                         |  |     |

<210> 151  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

|   |     |
|---|-----|
| <400> 151   |     |
| atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa | 48  |
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |
| 1 5 10 15   |     |
| aga tac ctg ctc gaa gcg aaa gag gct gaa att atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ile Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
| gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat gcg aaa | 144 |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Ala Lys |     |
| 35 40 45  |     |
| gtc aac gta tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Val Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tgc gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta aat tcc agt cag tct tgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Ser Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |

cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc 384  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
  
 tca gca gcg ccg tta cac act att aca gcc gat acc ttc cgt aaa ctg 432  
 Ser Ala Ala Pro Leu His Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
  
 ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg 480  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160  
  
 ggt gag gct tgt cgc tga 498  
 Gly Glu Ala Cys Arg \*  
 165

<210> 152  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 152  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ile Ile Thr Thr Gly Cys  
 20 25 30  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Ala Lys  
 35 40 45  
 Val Asn Val Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Ser Trp Glu Pro Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu His Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160  
 Gly Glu Ala Cys Arg  
 165

<210> 153  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 153

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| atg | gat | atc | gcc | ccg | ccc | cgt | ctg | att | tgc | gac | agc | agg | gtg | cta | gaa | 48 |
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |    |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |    |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| aga | tac | ctg | ctc | gaa | gcg | aaa | gag | gct | gaa | aat | atc | acc | aca | ggc | tgt | 96 |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Asn | Ile | Thr | Thr | Gly | Cys |    |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |     |    |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| gca | gaa | cat | tgc | tca | ctg | aac | gag | att | att | act | gta | ccg | gat | acg | aaa | 144 |
| Ala | Glu | His | Cys | Ser | Leu | Asn | Glu | Ile | Ile | Thr | Val | Pro | Asp | Thr | Lys |     |
|     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| gtc | aac | ttt | tat | gcc | tgg | aaa | cga | atg | gaa | gtt | gga | caa | cag | gcg | gtg | 192 |
| Val | Asn | Phe | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |     |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| gaa | gtt | tgg | cag | ggg | ctt | gcc | ctg | ttg | tgc | gag | gca | gtc | ctg | cgg | ggc | 240 |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |     |
|     | 65  |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| caa | act | tta | ctg | gta | aat | tcc | agt | cag | gct | tgg | gaa | cca | tta | cag | ttg | 288 |
| Gln | Thr | Leu | Leu | Val | Asn | Ser | Ser | Gln | Ala | Trp | Glu | Pro | Leu | Gln | Leu |     |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| cac | gtg | gat | aag | gcg | gtt | tct | ggc | ctg | cgc | agc | ctt | acc | acg | ctg | ctc | 336 |
| His | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |     |
|     |     |     | 100 |     |     |     | 105 |     |     |     |     |     | 110 |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| cgt | gca | ctg | ggc | gcc | caa | aaa | gaa | gct | atc | tgc | ccg | cct | gac | gcg | gcc | 384 |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |     |
|     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| tca | gca | gcg | ccg | tta | cgc | act | att | aca | gcc | gat | acc | ttc | cgt | aaa | ctg | 432 |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |     |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| ttt | cgc | gtc | tac | tcc | aac | ttt | ttg | cgt | ggc | aaa | ctg | aaa | ctt | tat | acg | 480 |
| Phe | Arg | Val | Tyr | Ser | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Leu | Tyr | Thr |     |
|     | 145 |     |     |     | 150 |     |     |     | 155 |     |     |     |     | 160 |     |     |

|     |     |     |     |     |     |  |  |  |  |  |  |  |  |  |  |     |
|-----|-----|-----|-----|-----|-----|--|--|--|--|--|--|--|--|--|--|-----|
| ggc | gag | gct | tgt | cgc | tga |  |  |  |  |  |  |  |  |  |  | 498 |
| Gly | Glu | Ala | Cys | Arg | *   |  |  |  |  |  |  |  |  |  |  |     |
|     |     |     |     | 165 |     |  |  |  |  |  |  |  |  |  |  |     |

<210> 154

<211> 165

<212> PRT

<213> Homo sapiens

<400> 154

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |

Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
                   20                                  25                                  30  
 Ala Glu His Cys Ser Leu Asn Glu Ile Ile Thr Val Pro Asp Thr Lys  
                   35                                  40                                  45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
                   50                                  55                                  60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65                                  70                                  75                                  80  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Ala Trp Glu Pro Leu Gln Leu  
                                   85                                  90                                  95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
                                   100                                  105                                  110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
                   115                                  120                                  125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
                   130                                  135                                  140  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145                                  150                                  155                                  160  
 Gly Glu Ala Cys Arg  
                                   165

<210> 155  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 155  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
   1                                  5                                  10                                  15  
  
 aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt 96  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
                   20                                  25                                  30  
  
 gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat tcg aaa 144  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Ser Lys  
                   35                                  40                                  45  
  
 gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
                   50                                  55                                  60  
  
 gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt 240  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
                   65                                  70                                  75                                  80  
  
 caa act tta ctg gta att tcc agt cag cct ggg gaa cca tta cag ttg 288  
 Gln Thr Leu Leu Val Ile Ser Ser Gln Pro Gly Glu Pro Leu Gln Leu  
                                   85                                  90                                  95

cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc 336  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
  
 cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc 384  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
  
 tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg 432  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
  
 ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg 480  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160  
  
 ggt gag gct tgt cgc tga 498  
 Gly Glu Ala Cys Arg \*  
 165

<210> 156  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 156  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Ser Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Ile Ser Ser Gln Pro Gly Glu Pro Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160  
 Gly Glu Ala Cys Arg  
 165

<210> 157  
 <211> 498  
 <212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(498)

<400> 157

|   |     |
|---|-----|
| atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa | 48  |
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |
| 1 5 10 15   |     |
| aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
| gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa | 144 |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
| gtc aac gta tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Val Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tgc gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta att tcc agt cag cct tgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Ile Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tgc ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
| ttt cgc gtc tac ccc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg | 480 |
| Phe Arg Val Tyr Pro Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |
| 145 150 155 160   |     |
| ggt gag gct tgt cgc tga   | 498 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

<210> 158

<211> 165

<212> PRT

<213> Homo sapiens

<400> 158

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Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu
 1           5           10           15
Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys
          20           25           30
Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys
          35           40           45
Val Asn Val Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val
          50           55           60
Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly
65           70           75           80
Gln Thr Leu Leu Val Ile Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu
          85           90           95
His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu
          100          105          110
Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala
          115          120          125
Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu
          130          135          140
Phe Arg Val Tyr Pro Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr
145          150          155          160
Gly Glu Ala Cys Arg
          165
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<210> 159

<211> 498

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(498)

<400> 159

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atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa   48
Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu
 1           5           10           15

aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt   96
Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys
          20           25           30

gaa gaa tat tgc tca ctg aac gag act att act gta ccg gat acg aaa   144
Glu Glu Tyr Cys Ser Leu Asn Glu Thr Ile Thr Val Pro Asp Thr Lys
          35           40           45

gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cgg gcg gtg   192
Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Arg Ala Val
          50           55           60

gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt   240
Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly
```

| 65  | 70  | 75  | 80  |     |
|---|-----|-----|-----|-----|
| caa act tta ctg gta att tcc agt cag tct agg gaa cga tta cag ttg |     |     |     | 288 |
| Gln Thr Leu Leu Val Ile Ser Ser Gln Ser Arg Glu Arg Leu Gln Leu |     |     |     |     |
|   | 85  | 90  | 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc |     |     |     | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |     |     |     |
|   | 100 | 105 | 110 |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc |     |     |     | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |     |     |     |
|   | 115 | 120 | 125 |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg |     |     |     | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |     |     |     |
|   | 130 | 135 | 140 |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg |     |     |     | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |     |     |     |
|   | 145 | 150 | 155 | 160 |
| ggt gag gct tgt cgc tga   |     |     |     | 498 |
| Gly Glu Ala Cys Arg *   |     |     |     |     |
|   | 165 |     |     |     |

<210> 160  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 160

|   |     |     |     |  |
|---|-----|-----|-----|--|
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |     |     |  |
| 1   | 5   | 10  | 15  |  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |     |     |     |  |
|   | 20  | 25  | 30  |  |
| Glu Glu Tyr Cys Ser Leu Asn Glu Thr Ile Thr Val Pro Asp Thr Lys |     |     |     |  |
|   | 35  | 40  | 45  |  |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Arg Ala Val |     |     |     |  |
|   | 50  | 55  | 60  |  |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |     |     |  |
| 65  | 70  | 75  | 80  |  |
| Gln Thr Leu Leu Val Ile Ser Ser Gln Ser Arg Glu Arg Leu Gln Leu |     |     |     |  |
|   | 85  | 90  | 95  |  |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |     |     |  |
|   | 100 | 105 | 110 |  |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |     |     |  |
|   | 115 | 120 | 125 |  |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |     |     |  |
|   | 130 | 135 | 140 |  |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |     |     |  |
| 145   | 150 | 155 | 160 |  |
| Gly Glu Ala Cys Arg   |     |     |     |  |
|   | 165 |     |     |  |



<210> 161  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 161

|   |     |
|---|-----|
| atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa | 48  |
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |
| 1 5 10 15   |     |
| aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
| gca gaa cat tgc tca ctg aac gag act att act gta ccg gat acg aaa | 144 |
| Ala Glu His Cys Ser Leu Asn Glu Thr Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tgc gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta att tcc agt cag cct tgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Ile Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tgc ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |
| 145 150 155 160   |     |
| ggt gag gct tgt cgc tga   | 498 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

<210> 162  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 162  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 Ala Glu His Cys Ser Leu Asn Glu Thr Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Ile Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160  
 Gly Glu Ala Cys Arg  
 165

<210> 163  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 163  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt 96  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 gaa gaa cat tgc tca ctg aac gag att att act gta ccg gat acg aaa 144  
 Glu Glu His Cys Ser Leu Asn Glu Ile Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192

|   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Val   | Asn | Phe | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |  |  |
| 50  |     |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |  |  |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tgc gag gca gtc ctg cgg ggt 240 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Glu   | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |  |  |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |  |  |
| caa act tta ctg gta act tcc agt cag cct agg gaa caa tta cag ttg 288 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Gln   | Thr | Leu | Leu | Val | Thr | Ser | Ser | Gln | Pro | Arg | Glu | Gln | Leu | Gln | Leu |  |  |
|   |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |  |  |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc 336 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| His   | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |  |  |
|   |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |  |  |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tgc ccg cct gac gcg gcc 384 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Arg   | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |  |  |
|   |     |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     |     |  |  |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg 432 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Ser   | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |  |  |
|   |     |     | 130 |     |     |     | 135 |     |     |     | 140 |     |     |     |     |  |  |
| ttt cgc gtc tac acc aac ttc ttg cgt ggc aaa ctg aaa ttt tat acg 480 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Phe   | Arg | Val | Tyr | Thr | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Phe | Tyr | Thr |  |  |
| 145   |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     | 160 |     |  |  |
| ggg gag gct tgt cgc tga 498   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Gly   | Glu | Ala | Cys | Arg | *   |     |     |     |     |     |     |     |     |     |     |  |  |
|   |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |     |  |  |

<210> 164  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 164

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |  |  |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |  |  |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Asn | Ile | Thr | Thr | Gly | Cys |  |  |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |  |  |
| Glu | Glu | His | Cys | Ser | Leu | Asn | Glu | Ile | Ile | Thr | Val | Pro | Asp | Thr | Lys |  |  |
|     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |  |  |
| Val | Asn | Phe | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |  |  |
| 50  |     |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |  |  |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |  |  |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |  |  |
| Gln | Thr | Leu | Leu | Val | Thr | Ser | Ser | Gln | Pro | Arg | Glu | Gln | Leu | Gln | Leu |  |  |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |  |  |
| His | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |  |  |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |  |  |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |  |  |
|     |     |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     |     |  |  |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |  |  |

|                     |                     |                         |     |     |
|---------------------|---------------------|-------------------------|-----|-----|
| 130                 |                     | 135                     |     | 140 |
| Phe Arg Val Tyr Thr | Asn Phe Leu Arg Gly | Lys Leu Lys Phe Tyr Thr |     |     |
| 145                 | 150                 | 155                     | 160 |     |
| Gly Glu Ala Cys Arg |                     |                         |     |     |
|                     | 165                 |                         |     |     |

<210> 165  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1) ... (498)

<400> 165

|   |     |
|---|-----|
| atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa | 48  |
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |
| 1 5 10 15   |     |
| aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
| gta gaa gat tgc tca ctg aac gag aat att act gta ccg gat acg aaa | 144 |
| Val Glu Asp Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta att tcc agt cag cct tgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Ile Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ttt tat acg | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Phe Tyr Thr |     |

145                      150                      155                      160

ggt gag gct tgt cgc tga                      498

Gly Glu Ala Cys Arg \*

165

<210> 166

<211> 165

<212> PRT

<213> Homo sapiens

<400> 166

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Asn | Ile | Thr | Thr | Gly | Cys |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |     |
| Val | Glu | Asp | Cys | Ser | Leu | Asn | Glu | Asn | Ile | Thr | Val | Pro | Asp | Thr | Lys |
|     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Val | Asn | Phe | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Gln | Thr | Leu | Leu | Val | Ile | Ser | Ser | Gln | Pro | Trp | Glu | Pro | Leu | Gln | Leu |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| His | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Phe | Arg | Val | Tyr | Ser | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Phe | Tyr | Thr |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Gly | Glu | Ala | Cys | Arg |     |     |     |     |     |     |     |     |     |     |     |
|     |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |     |

<210> 167

<211> 498

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(498)

<400> 167

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| atg | gat | atc | gcc | ccg | ccc | cgt | ctg | att | tgc | gac | agc | agg | gtg | cta | gaa |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| aga | tac | ctg | ctc | gaa | gcg | aaa | gag | gct | gaa | act | atc | acc | aca | ggc | tgt |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Thr | Ile | Thr | Thr | Gly | Cys |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |

48

96

|   |     |
|---|-----|
| gca aaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa | 144 |
| Ala Lys His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |
| 145 150 155 160   |     |
| ggt gag gct tgt cgc tga   | 498 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

<210> 168  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 168

|   |  |
|---|--|
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |  |
| 1 5 10 15   |  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Thr Ile Thr Thr Gly Cys |  |
| 20 25 30  |  |
| Ala Lys His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |  |
| 35 40 45  |  |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |  |
| 50 55 60  |  |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |  |
| 65 70 75 80   |  |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |  |
| 85 90 95  |  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |
|     |     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |
|     |     |     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |
| Phe | Arg | Val | Tyr | Ser | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Leu | Tyr | Thr |
|     |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Gly | Glu | Ala | Cys | Arg |     |     |     |     |     |     |     |     |     |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 165 |

<210> 169  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

|   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| <400> 169   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| atg   | gat | atc | gcc | ccg | ccc | cgt | ctg | att | tgc | gac | agc | agg | gtg | cta | gaa | 48 |
| Met   | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |    |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |    |
| aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 96  |    |
| Arg   | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Asn | Ile | Thr | Thr | Gly | Cys |    |
|   |     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |    |
| gca gaa tat tgc tca ctg aac gag aat att act gta ccg gat acg aaa |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 144 |    |
| Ala   | Glu | Tyr | Cys | Ser | Leu | Asn | Glu | Asn | Ile | Thr | Val | Pro | Asp | Thr | Lys |    |
|   |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |    |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 192 |    |
| Val   | Asn | Phe | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |    |
|   | 50  |     |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |    |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tgc gag gca gtc ctg ctg ggt |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 240 |    |
| Glu   | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Leu | Gly |    |
|   | 65  |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |    |
| caa act tta ctg gta act tcc agt cag cct tgg gaa tca tta cag ttg |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 288 |    |
| Gln   | Thr | Leu | Leu | Val | Thr | Ser | Ser | Gln | Pro | Trp | Glu | Ser | Leu | Gln | Leu |    |
|   |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |    |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 336 |    |
| His   | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |    |
|   |     |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |    |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tgc ccg cct gac gcg gcc |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 384 |    |
| Arg   | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |    |
|   |     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |    |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 432 |    |

Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140

ttt cgc gtc tac ccc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg 480  
 Phe Arg Val Tyr Pro Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160

ggt gag gct tgt cgc tga 498  
 Gly Glu Ala Cys Arg \*  
 165

<210> 170  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 170  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 Ala Glu Tyr Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Leu Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Thr Ser Ser Gln Pro Trp Glu Ser Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 Phe Arg Val Tyr Pro Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160  
 Gly Glu Ala Cys Arg  
 165

<210> 171  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 171  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15



|   |     |
|---|-----|
| aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
|   |     |
| gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa | 144 |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
|   |     |
| gtc aac ttt tat gcc cgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Arg Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
|   |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
|   |     |
| cca act tta ctg gta act tcc agt cag cct tgg gaa cca tta cag ttg | 288 |
| Pro Thr Leu Leu Val Thr Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
|   |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
|   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
|   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
|   |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |
| 145 150 155 160   |     |
|   |     |
| ggg gag gct tgt cgc tga   | 498 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

<210> 172  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 172  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Arg Lys Arg Met Glu Val Gly Gln Gln Ala Val

|                     |                     |                         |     |    |  |
|---------------------|---------------------|-------------------------|-----|----|--|
| 50                  |                     | 55                      |     | 60 |  |
| Glu Val Trp Gln Gly | Leu Ala Leu Leu Ser | Glu Ala Val Leu Arg Gly |     |    |  |
| 65                  | 70                  | 75                      | 80  |    |  |
| Pro Thr Leu Leu Val | Thr Ser Ser Gln Pro | Trp Glu Pro Leu Gln Leu |     |    |  |
|                     | 85                  | 90                      | 95  |    |  |
| His Val Asp Lys Ala | Val Ser Gly Leu Arg | Ser Leu Thr Thr Leu Leu |     |    |  |
|                     | 100                 | 105                     | 110 |    |  |
| Arg Ala Leu Gly Ala | Gln Lys Glu Ala Ile | Ser Pro Pro Asp Ala Ala |     |    |  |
|                     | 115                 | 120                     | 125 |    |  |
| Ser Ala Ala Pro Leu | Arg Thr Ile Thr Ala | Asp Thr Phe Arg Lys Leu |     |    |  |
|                     | 130                 | 135                     | 140 |    |  |
| Phe Arg Val Tyr Ser | Asn Phe Leu Arg Gly | Lys Leu Lys Leu Tyr Thr |     |    |  |
| 145                 | 150                 | 155                     | 160 |    |  |
| Gly Glu Ala Cys Arg |                     |                         |     |    |  |
|                     | 165                 |                         |     |    |  |

<210> 173  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

|   |     |
|---|-----|
| <400> 173   |     |
| atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa | 48  |
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |
| 1 5 10 15   |     |
| aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
| gca gaa cat tgc tca ctg aac gag act att act gta ccg gat tcg aaa | 144 |
| Ala Glu His Cys Ser Leu Asn Glu Thr Ile Thr Val Pro Asp Ser Lys |     |
| 35 40 45  |     |
| gtc aac cta tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Leu Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tgc gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa aat tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg | 288 |
| Gln Asn Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |

cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc 384  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
  
 tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg 432  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
  
 ttt cgc gtc tac acc aac ttc ttg cgt ggc aaa ctg aat ctt tat acg 480  
 Phe Arg Val Tyr Thr Asn Phe Leu Arg Gly Lys Leu Asn Leu Tyr Thr  
 145 150 155 160  
  
 ggt gag gct tgt cgc tga 498  
 Gly Glu Ala Cys Arg \*  
 165

<210> 174  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 174  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 Ala Glu His Cys Ser Leu Asn Glu Thr Ile Thr Val Pro Asp Ser Lys  
 35 40 45  
 Val Asn Leu Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Asn Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 Phe Arg Val Tyr Thr Asn Phe Leu Arg Gly Lys Leu Asn Leu Tyr Thr  
 145 150 155 160  
 Gly Glu Ala Cys Arg  
 165

<210> 175  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 175  
atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
1 5 10 15  
aga tac ctg ctc gaa gcg aaa gag gct gaa att atc acc aca ggc tgt 96  
Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ile Ile Thr Thr Gly Cys  
20 25 30  
gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat tcg aaa 144  
Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Ser Lys  
35 40 45  
gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192  
Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
50 55 60  
gaa gtt tgg cag ggg ctt gcc ctg ttg tgc gag gca gtc ctg cgg ggt 240  
Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
65 70 75 80  
caa act tta ctg gta att tcc agt cag cct tgg gaa cca tta cag ttg 288  
Gln Thr Leu Leu Val Ile Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
85 90 95  
cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc 336  
His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
100 105 110  
cgt gca ctg ggt gcc caa aaa gaa gct atc tgc ccg cct gac gcg gcc 384  
Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
115 120 125  
tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg 432  
Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
130 135 140  
ttt cgc gtc tac gcc aac ttc ttg cgt ggc aaa ctg aaa ttt tat acg 480  
Phe Arg Val Tyr Ala Asn Phe Leu Arg Gly Lys Leu Lys Phe Tyr Thr  
145 150 155 160  
ggg gag gct tgt cgc tga 498  
Gly Glu Ala Cys Arg \*  
165

<210> 176  
<211> 165  
<212> PRT  
<213> Homo sapiens

<400> 176  
Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
1 5 10 15

Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ile Ile Thr Thr Gly Cys  
                   20                  25                  30  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Ser Lys  
                   35                  40                  45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
                   50                  55                  60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65                  70                  75                  80  
 Gln Thr Leu Leu Val Ile Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
                   85                  90                  95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
                   100                  105                  110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
                   115                  120                  125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
                   130                  135                  140  
 Phe Arg Val Tyr Ala Asn Phe Leu Arg Gly Lys Leu Lys Phe Tyr Thr  
 145                  150                  155                  160  
 Gly Glu Ala Cys Arg  
                   165

<210> 177  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 177  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
   1                  5                  10                  15  
  
 aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt 96  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
                   20                  25                  30  
  
 gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat gcg aaa 144  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Ala Lys  
                   35                  40                  45  
  
 gtc aac cta tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192  
 Val Asn Leu Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
                   50                  55                  60  
  
 gaa gtt tgg cag ggg ctt gcc ctg ttg tgc gag gca gtc ctg cgg ggt 240  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
                   65                  70                  75                  80  
  
 caa act tta ctg gta aat tcc agt cag tct tgg gaa cga tta cag ttg 288  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Ser Trp Glu Arg Leu Gln Leu  
                   85                  90                  95

cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc 336  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
  
 cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc 384  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
  
 tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg 432  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
  
 ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg 480  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160  
  
 ggt gag gct tgt cgc tga 498  
 Gly Glu Ala Cys Arg \*  
 165

<210> 178  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 178  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Ala Lys  
 35 40 45  
 Val Asn Leu Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Ser Trp Glu Arg Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160  
 Gly Glu Ala Cys Arg  
 165

<210> 179  
 <211> 498  
 <212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(498)

<400> 179

|   |     |
|---|-----|
| atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa | 48  |
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |
| 1 5 10 15   |     |
| aga tac ctg ctc gaa gcg aaa gag gct gaa agt atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ser Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
| gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat tcg aaa | 144 |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Ser Lys |     |
| 35 40 45  |     |
| gtc aac atc tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Ile Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta att tcc agt cag cct tgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Ile Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggt aaa ctg aaa ctt tat acg | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |
| 145 150 155 160   |     |
| ggt gag gct tgt cgc tga   | 498 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

<210> 180

<211> 165

<212> PRT

<213> Homo sapiens

<400> 180

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Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu
 1          5          10          15
Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ser Ile Thr Thr Gly Cys
          20          25          30
Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Ser Lys
          35          40          45
Val Asn Ile Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val
          50          55          60
Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly
65          70          75          80
Gln Thr Leu Leu Val Ile Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu
          85          90          95
His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu
          100          105          110
Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala
          115          120          125
Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu
          130          135          140
Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr
145          150          155          160
Gly Glu Ala Cys Arg
          165
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<210> 181

<211> 498

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(498)

<400> 181

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atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa   48
Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu
 1          5          10          15

aga tac ctg ctc gaa gcg aaa gag gct gaa agt atc acc aca ggc tgt   96
Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ser Ile Thr Thr Gly Cys
          20          25          30

gca gaa cat tgt tca ctg aac gag aat att act gta ccg gat gcg aaa  144
Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Ala Lys
          35          40          45

gtc aac ttg tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg  192
Val Asn Leu Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val
          50          55          60

gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt  240
Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly
```



| 65  | 70  | 75 | 80 |  |
|---|-----|----|----|--|
| caa act tta ctg gta aat tcc agt cag tct tgg gaa cca tta cag ttg | 288 |    |    |  |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Ser Trp Glu Pro Leu Gln Leu |     |    |    |  |
| 85 90 95  |     |    |    |  |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |    |    |  |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |    |    |  |
| 100 105 110   |     |    |    |  |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 384 |    |    |  |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |    |    |  |
| 115 120 125   |     |    |    |  |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |    |    |  |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |    |    |  |
| 130 135 140   |     |    |    |  |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg | 480 |    |    |  |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |    |    |  |
| 145 150 155 160   |     |    |    |  |
| ggt gag gct tgt cgc tga   | 498 |    |    |  |
| Gly Glu Ala Cys Arg *   |     |    |    |  |
| 165   |     |    |    |  |

<210> 182  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 182

|   |     |     |     |     |
|---|-----|-----|-----|-----|
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu | 1   | 5   | 10  | 15  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ser Ile Thr Thr Gly Cys | 20  | 25  | 30  |     |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Ala Lys | 35  | 40  | 45  |     |
| Val Asn Leu Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val | 50  | 55  | 60  |     |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly | 65  | 70  | 75  | 80  |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Ser Trp Glu Pro Leu Gln Leu | 85  | 90  | 95  |     |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu | 100 | 105 | 110 |     |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala | 115 | 120 | 125 |     |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu | 130 | 135 | 140 |     |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr | 145 | 150 | 155 | 160 |
| Gly Glu Ala Cys Arg   | 165 |     |     |     |

<210> 183  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 183  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 aga tac ctg ctc gaa gcg aaa gag gct gaa agt atc acc aca ggc tgt 96  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ser Ile Thr Thr Gly Cys  
 20 25 30  
 gga gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa 144  
 Gly Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt 240  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg 288  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
 85 90 95  
 cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc 336  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc 384  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg 432  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 ttt cgc gtc tac gcc aac ttc ttg cgt ggc aaa ctg aaa gtt tat acg 480  
 Phe Arg Val Tyr Ala Asn Phe Leu Arg Gly Lys Leu Lys Val Tyr Thr  
 145 150 155 160  
 ggt gag gct tgt cgc tga 498  
 Gly Glu Ala Cys Arg \*  
 165

<210> 184  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 184  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ser Ile Thr Thr Gly Cys  
 20 25 30  
 Gly Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 Phe Arg Val Tyr Ala Asn Phe Leu Arg Gly Lys Leu Lys Val Tyr Thr  
 145 150 155 160  
 Gly Glu Ala Cys Arg  
 165

<210> 185  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 185  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt 96  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 gta gaa aat tgc tca ctg aac gag aat att act gta ccg gat acg aaa 144  
 Val Glu Asn Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Val | Asn | Phe | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |     |  |
| 50  |     |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| gaa | gtt | tgg | cag | ggg | ctt | gcc | ctg | ttg | tcg | gag | gca | gtc | ctg | cgg | ggc | 240 |  |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |     |  |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| caa | act | tta | ctg | gta | aat | tcc | agt | cag | tct | agg | gaa | cca | tta | cag | ttg | 288 |  |
| Gln | Thr | Leu | Leu | Val | Asn | Ser | Ser | Gln | Ser | Arg | Glu | Pro | Leu | Gln | Leu |     |  |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| cac | gtg | gat | aag | gcg | gtt | tct | ggc | ctg | cgc | agc | ctt | acc | acg | ctg | ctc | 336 |  |
| His | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |     |  |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| cgt | gca | ctg | ggc | caa | aaa | gaa | gct | atc | tcg | ccg | cct | gac | gcg | gcc |     | 384 |  |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |     |  |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| tca | gca | gcg | ccg | tta | cgc | act | att | aca | gcc | gat | acc | ttc | cgt | aaa | ctg | 432 |  |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |     |  |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| ttt | cgc | gtc | tac | acc | aac | ttc | ttg | cgt | ggc | aaa | ctg | aaa | gtt | tat | acg | 480 |  |
| Phe | Arg | Val | Tyr | Thr | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Val | Tyr | Thr |     |  |
| 145 |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     | 160 |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| ggc | gag | gct | tgt | cgc | tga |     |     |     |     |     |     |     |     |     |     | 498 |  |
| Gly | Glu | Ala | Cys | Arg | *   |     |     |     |     |     |     |     |     |     |     |     |  |
|     |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |     |     |  |

<210> 186  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 186

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |  |  |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |  |  |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Asn | Ile | Thr | Thr | Gly | Cys |  |  |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |  |  |
| Val | Glu | Asn | Cys | Ser | Leu | Asn | Glu | Asn | Ile | Thr | Val | Pro | Asp | Thr | Lys |  |  |
|     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |  |  |
| Val | Asn | Phe | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |  |  |
| 50  |     |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |  |  |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |  |  |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |  |  |
| Gln | Thr | Leu | Leu | Val | Asn | Ser | Ser | Gln | Ser | Arg | Glu | Pro | Leu | Gln | Leu |  |  |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |  |  |
| His | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |  |  |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |  |  |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |  |  |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |  |  |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |  |  |

|                     |                         |                     |     |     |
|---------------------|-------------------------|---------------------|-----|-----|
| 130                 |                         | 135                 |     | 140 |
| Phe Arg Val Tyr Thr | Asn Phe Leu Arg Gly Lys | Leu Lys Val Tyr Thr |     |     |
| 145                 | 150                     | 155                 | 160 |     |
| Gly Glu Ala Cys Arg |                         |                     |     |     |
|                     | 165                     |                     |     |     |

<210> 187  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

|   |     |
|---|-----|
| <400> 187   |     |
| atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa | 48  |
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |
| 1 5 10 15   |     |
| aga tac ctg ctc gaa gcg aaa gag gct gaa act atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Thr Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
| gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa | 144 |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta agt tcc agt cag cct ccg gaa cga tta cag ttg | 288 |
| Gln Thr Leu Leu Val Ser Ser Ser Gln Pro Arg Glu Arg Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
| ttt cgc gtc tac gcc aac ttc ttg cgt ggc aaa ctg aaa gtt tat acg | 480 |
| Phe Arg Val Tyr Ala Asn Phe Leu Arg Gly Lys Leu Lys Val Tyr Thr |     |

145                      150                      155                      160

ggt gag gct tgt cgc tga                      498

Gly Glu Ala Cys Arg \*

165

<210> 188

<211> 165

<212> PRT

<213> Homo sapiens

<400> 188

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Thr | Ile | Thr | Thr | Gly | Cys |
|     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ala | Glu | His | Cys | Ser | Leu | Asn | Glu | Asn | Ile | Thr | Val | Pro | Asp | Thr | Lys |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Val | Asn | Phe | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Gln | Thr | Leu | Leu | Val | Ser | Ser | Ser | Gln | Pro | Arg | Glu | Arg | Leu | Gln | Leu |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| His | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Phe | Arg | Val | Tyr | Ala | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Val | Tyr | Thr |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Gly | Glu | Ala | Cys | Arg |     |     |     |     |     |     |     |     |     |     |     |
|     |     |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |

<210> 189

<211> 498

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(498)

<400> 189

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| atg | gat | atc | gcc | ccg | ccc | cgt | ctg | att | tgc | gac | agc | agg | gtg | cta | gaa |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| aga | tac | ctg | ctc | gaa | gcg | aaa | gag | gct | gaa | agt | atc | acc | aca | ggc | tgt |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Ser | Ile | Thr | Thr | Gly | Cys |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |

48

96

|   |     |
|---|-----|
| gaa gaa gat tgc tca ctg aac gag aat att act gta ccg gat ccg aaa | 144 |
| Glu Glu Asp Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Pro Lys |     |
| 35 40 45  |     |
| gtc aac atg tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Met Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tgc gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta att tcc agt cag tct agg gaa cta tta cag ttg | 288 |
| Gln Thr Leu Leu Val Ile Ser Ser Gln Ser Arg Glu Leu Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tgc ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
| ttt cgc gtc tac acc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg | 480 |
| Phe Arg Val Tyr Thr Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |
| 145 150 155 160   |     |
| ggg gag gct tgt cgc tga   | 498 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

<210> 190  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 190

|   |  |
|---|--|
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |  |
| 1 5 10 15   |  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ser Ile Thr Thr Gly Cys |  |
| 20 25 30  |  |
| Glu Glu Asp Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Pro Lys |  |
| 35 40 45  |  |
| Val Asn Met Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |  |
| 50 55 60  |  |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |  |
| 65 70 75 80   |  |
| Gln Thr Leu Leu Val Ile Ser Ser Gln Ser Arg Glu Leu Leu Gln Leu |  |
| 85 90 95  |  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Phe | Arg | Val | Tyr | Thr | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Leu | Tyr | Thr |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Gly | Glu | Ala | Cys | Arg |     |     |     |     |     |     |     |     |     |     |     |
|     |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |     |

<210> 191  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

|   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| <400> 191   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| atg   | gat | atc | gcc | ccg | ccc | cgt | ctg | att | tgc | gac | agc | agg | gtg | cta | gaa | 48 |
| Met   | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |    |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |    |
| aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 96  |    |
| Arg   | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Asn | Ile | Thr | Thr | Gly | Cys |    |
|   |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |    |
| gca gaa cat tgc tca ctg aac gag act att act gta ccg gat gcg aaa |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 144 |    |
| Ala   | Glu | His | Cys | Ser | Leu | Asn | Glu | Thr | Ile | Thr | Val | Pro | Asp | Ala | Lys |    |
|   |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |    |
| gtc aac att tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 192 |    |
| Val   | Asn | Ile | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |    |
|   | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |    |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 240 |    |
| Glu   | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |    |
|   | 65  |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |    |
| caa act tta ctg gta att tcc agt cag cct tgg gaa cca tta cag ttg |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 288 |    |
| Gln   | Thr | Leu | Leu | Val | Ile | Ser | Ser | Gln | Pro | Trp | Glu | Pro | Leu | Gln | Leu |    |
|   |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |    |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 336 |    |
| His   | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |    |
|   |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |    |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 384 |    |
| Arg   | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |    |
|   |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |    |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 432 |    |



Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140

ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg 480  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160

ggt gag gct tgt cgc tga 498  
 Gly Glu Ala Cys Arg \*  
 165

<210> 192  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 192  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 Ala Glu His Cys Ser Leu Asn Glu Thr Ile Thr Val Pro Asp Ala Lys  
 35 40 45  
 Val Asn Ile Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Ile Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160  
 Gly Glu Ala Cys Arg  
 165

<210> 193  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 193  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15

|   |     |
|---|-----|
| aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
| gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa | 144 |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
| gtc aac ttt tat gcc cgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Arg Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta act tcc agt cag cct tgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Thr Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa att tat acg | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Ile Tyr Thr |     |
| 145 150 155 160   |     |
| ggg gag gct tgt cgc tga   | 498 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

<210> 194  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 194  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Arg Lys Arg Met Glu Val Gly Gln Gln Ala Val

|                     |                     |                         |     |     |     |
|---------------------|---------------------|-------------------------|-----|-----|-----|
| 50                  |                     | 55                      |     | 60  |     |
| Glu Val Trp Gln Gly | Leu Ala Leu Leu Ser | Glu Ala Val Leu Arg Gly |     |     |     |
| 65                  |                     | 70                      |     | 75  | 80  |
| Gln Thr Leu Leu Val | Thr Ser Ser Gln Pro | Trp Glu Pro Leu Gln Leu |     |     |     |
|                     | 85                  |                         | 90  |     | 95  |
| His Val Asp Lys Ala | Val Ser Gly Leu Arg | Ser Leu Thr Thr Leu Leu |     |     |     |
|                     | 100                 |                         | 105 |     | 110 |
| Arg Ala Leu Gly Ala | Gln Lys Glu Ala Ile | Ser Pro Pro Asp Ala Ala |     |     |     |
|                     | 115                 |                         | 120 |     | 125 |
| Ser Ala Ala Pro Leu | Arg Thr Ile Thr Ala | Asp Thr Phe Arg Lys Leu |     |     |     |
|                     | 130                 |                         | 135 |     | 140 |
| Phe Arg Val Tyr Ser | Asn Phe Leu Arg Gly | Lys Leu Lys Ile Tyr Thr |     |     |     |
| 145                 |                     | 150                     |     | 155 | 160 |
| Gly Glu Ala Cys Arg |                     |                         |     |     |     |
|                     | 165                 |                         |     |     |     |

<210> 195  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

|   |     |
|---|-----|
| <400> 195   |     |
| atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa | 48  |
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |
| 1 5 10 15   |     |
| aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
| gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa | 144 |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta agt tcc agt cag cct tgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Ser Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |

[illegible]

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<210> 197
<211> 498
<212> DNA
<213> Homo sapiens
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<400> 197

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| atg | gat | atc | gcc | ccg | ccc | cgt | ctg | att | tgc | gac | agc | agg | gtg | tta | gaa | 48 |
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |    |
| 1   |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |     |    |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| aga | tac | ctg | ttc | gaa | gcg | aaa | gag | gct | gaa | aat | atc | acc | aca | ggc | tgt | 96 |
| Arg | Tyr | Leu | Phe | Glu | Ala | Lys | Glu | Ala | Glu | Asn | Ile | Thr | Thr | Gly | Cys |    |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |     |    |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| gca | gaa | tat | tgc | tca | ctg | aac | gag | aat | att | act | gta | ccg | gat | acg | aaa | 144 |
| Ala | Glu | Tyr | Cys | Ser | Leu | Asn | Glu | Asn | Ile | Thr | Val | Pro | Asp | Thr | Lys |     |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| gtc | aac | ttt | tat | gcc | cgg | aaa | cga | atg | gaa | gtt | gga | caa | cag | gcg | gtg | 192 |
| Val | Asn | Phe | Tyr | Ala | Arg | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |     |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| gaa | gtt | tgg | cag | ggg | ctt | gcc | ctg | ttg | tcg | gag | gca | gtc | ctg | cgg | ggc | 240 |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |     |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| caa | act | tta | ctg | gta | att | tcc | agt | cag | cct | tgg | gaa | cca | tta | cag | ttg | 288 |
| Gln | Thr | Leu | Leu | Val | Ile | Ser | Ser | Gln | Pro | Trp | Glu | Pro | Leu | Gln | Leu |     |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| cac | gtg | gat | aag | tcg | gtt | tct | ggc | ctg | cgc | agc | ctt | acc | acg | ctg | ctc | 336 |
| His | Val | Asp | Lys | Ser | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |     |
|     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| cgt | gca | ctg | ggc | gcc | caa | aaa | gaa | gct | atc | tcg | ccg | cct | gac | gcg | gcc | 384 |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |     |
|     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| tca | gca | gcg | ccg | tta | cgc | act | att | aca | gcc | gat | acc | ttc | cgt | aaa | ctg | 432 |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |     |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| ttt | cgc | gtc | tac | tcc | aac | ttc | ttg | cgt | ggc | aaa | ctg | aaa | ttt | tat | acg | 480 |
| Phe | Arg | Val | Tyr | Ser | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Phe | Tyr | Thr |     |
| 145 |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     | 160 |     |     |

|     |     |     |     |     |     |  |  |  |  |  |  |  |  |  |  |     |
|-----|-----|-----|-----|-----|-----|--|--|--|--|--|--|--|--|--|--|-----|
| ggc | gag | gct | tgt | cgc | tga |  |  |  |  |  |  |  |  |  |  | 498 |
| Gly | Glu | Ala | Cys | Arg | *   |  |  |  |  |  |  |  |  |  |  |     |
|     |     |     | 165 |     |     |  |  |  |  |  |  |  |  |  |  |     |

<210> 198

<211> 165

<212> PRT

<213> Homo sapiens

<400> 198

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |
| 1   |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Arg | Tyr | Leu | Phe | Glu | Ala | Lys | Glu | Ala | Glu | Asn | Ile | Thr | Thr | Gly | Cys |  |
|     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |     |     |  |
| Ala | Glu | Tyr | Cys | Ser | Leu | Asn | Glu | Asn | Ile | Thr | Val | Pro | Asp | Thr | Lys |  |
|     | 35  |     |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |  |
| Val | Asn | Phe | Tyr | Ala | Arg | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |  |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |  |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |  |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |  |
| Gln | Thr | Leu | Leu | Val | Ile | Ser | Ser | Gln | Pro | Trp | Glu | Pro | Leu | Gln | Leu |  |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |  |
| His | Val | Asp | Lys | Ser | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |  |
|     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |     |  |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |  |
|     | 115 |     |     |     |     |     | 120 |     |     |     | 125 |     |     |     |     |  |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |  |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |  |
| Phe | Arg | Val | Tyr | Ser | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Phe | Tyr | Thr |  |
| 145 |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     |     | 160 |  |
| Gly | Glu | Ala | Cys | Arg |     |     |     |     |     |     |     |     |     |     |     |  |
|     |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |     |  |

<210> 199  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

|   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| <400> 199   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| atg   | gat | atc | gcc | ccg | ccc | cgt | ctg | att | tgc | gac | agc | agg | gtg | cta | gaa | 48 |
| Met   | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |    |
| 1   |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |     |    |
| aga tac ctg ctc gaa gcg aaa gag gct gaa att atc acc aca ggc tgt 96  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Arg   | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Ile | Ile | Thr | Thr | Gly | Cys |    |
|   |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |     |    |
| gca gaa tat tgc tca ctg aac gag aat att act gta ccg gat acg aaa 144 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Ala   | Glu | Tyr | Cys | Ser | Leu | Asn | Glu | Asn | Ile | Thr | Val | Pro | Asp | Thr | Lys |    |
|   | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |    |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Val   | Asn | Phe | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |    |
|   | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |    |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tgc gag gca gtc ctg cgg ggt 240 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Glu   | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |    |
| 65  |     |     |     | 70  |     |     |     | 75  |     |     |     |     |     | 80  |     |    |
| caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg 288 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
| Gln   | Thr | Leu | Leu | Val | Asn | Ser | Ser | Gln | Pro | Trp | Glu | Pro | Leu | Gln | Leu |    |
|   |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |    |

cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc 336  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
  
 cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc 384  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
  
 tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg 432  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
  
 ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg 480  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160  
  
 ggt gag gct tgt cgc tga 498  
 Gly Glu Ala Cys Arg \*  
 165

<210> 200  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 200  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ile Ile Thr Thr Gly Cys  
 20 25 30  
 Ala Glu Tyr Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr  
 145 150 155 160  
 Gly Glu Ala Cys Arg  
 165

<210> 201  
 <211> 498  
 <212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(498)

<400> 201

|   |     |
|---|-----|
| atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa | 48  |
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |
| 1 5 10 15   |     |
| aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
| gga gaa tat tgc tca ctg aac gag aat att act gta ccg gat acg aaa | 144 |
| Gly Glu Tyr Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
| gtc aac gta tat gcc tgg gaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Val Tyr Ala Trp Glu Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tgc gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tgc ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |
| 145 150 155 160   |     |
| ggt gag gct tgt cgc tga   | 498 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

<210> 202

<211> 165

<212> PRT



<213> Homo sapiens

<400> 202

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Asn | Ile | Thr | Thr | Gly | Cys |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |
| Gly | Glu | Tyr | Cys | Ser | Leu | Asn | Glu | Asn | Ile | Thr | Val | Pro | Asp | Thr | Lys |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     |     | 45  |     |     |
| Val | Asn | Val | Tyr | Ala | Trp | Glu | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Gln | Thr | Leu | Leu | Val | Asn | Ser | Ser | Gln | Pro | Trp | Glu | Pro | Leu | Gln | Leu |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| His | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Phe | Arg | Val | Tyr | Ser | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Leu | Tyr | Thr |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Gly | Glu | Ala | Cys | Arg |     |     |     |     |     |     |     |     |     |     |     |
|     |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |     |

<210> 203

<211> 498

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(498)

<400> 203

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| atg | gat | atc | gcc | ccg | ccc | cgt | ctg | att | tgc | gac | agc | agg | gtg | cta | gaa | 48  |
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |     |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |     |
| aga | tac | ctg | ctc | gaa | gcg | aaa | gag | gct | gaa | aat | atc | acc | aca | ggc | tgt | 96  |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Asn | Ile | Thr | Thr | Gly | Cys |     |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |     |
| gca | gaa | cat | tgc | tta | ctg | aac | gag | att | att | act | gta | ccg | gat | tcg | aaa | 144 |
| Ala | Glu | His | Cys | Leu | Leu | Asn | Glu | Ile | Ile | Thr | Val | Pro | Asp | Ser | Lys |     |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| gtc | aac | ttg | tat | gcc | tgg | aaa | cga | atg | gaa | gtt | gga | caa | cag | gcg | gtg | 192 |
| Val | Asn | Leu | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |     |
|     |     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |
| gaa | gtt | tgg | cag | ggg | ctt | gcc | ctg | ttg | tcg | gag | gca | gtc | ctg | cgg | ggg | 240 |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |     |

| 65  | 70  | 75  | 80  |     |
|---|-----|-----|-----|-----|
| caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg |     |     |     | 288 |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |     |     |     |
|   | 85  | 90  | 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc |     |     |     | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |     |     |     |
|   | 100 | 105 | 110 |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc |     |     |     | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |     |     |     |
|   | 115 | 120 | 125 |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg |     |     |     | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |     |     |     |
|   | 130 | 135 | 140 |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa ttt tat acg |     |     |     | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Phe Tyr Thr |     |     |     |     |
|   | 145 | 150 | 155 | 160 |
| ggg gag gct tgt cgc tga   |     |     |     | 498 |
| Gly Glu Ala Cys Arg *   |     |     |     |     |
|   | 165 |     |     |     |

<210> 204  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 204

|   |     |     |     |  |
|---|-----|-----|-----|--|
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |     |     |  |
| 1   | 5   | 10  | 15  |  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |     |     |     |  |
|   | 20  | 25  | 30  |  |
| Ala Glu His Cys Leu Leu Asn Glu Ile Ile Thr Val Pro Asp Ser Lys |     |     |     |  |
|   | 35  | 40  | 45  |  |
| Val Asn Leu Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |     |     |  |
|   | 50  | 55  | 60  |  |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |     |     |  |
| 65  | 70  | 75  | 80  |  |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |     |     |  |
|   | 85  | 90  | 95  |  |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |     |     |  |
|   | 100 | 105 | 110 |  |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |     |     |  |
|   | 115 | 120 | 125 |  |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |     |     |  |
|   | 130 | 135 | 140 |  |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Phe Tyr Thr |     |     |     |  |
| 145   | 150 | 155 | 160 |  |
| Gly Glu Ala Cys Arg   |     |     |     |  |
|   | 165 |     |     |  |

<210> 205  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 205  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15

aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt 96  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30

gca gaa cat tgc tca ctg aac gag agt att act gta ccg gat acg aaa 144  
 Ala Glu His Cys Ser Leu Asn Glu Ser Ile Thr Val Pro Asp Thr Lys  
 35 40 45

gtc aac cta tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192  
 Val Asn Leu Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60

gaa gtt tgg cag ggg ctt gcc ctg ttg tgc gag gca gtc ctg cgg ggt 240  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80

caa act tta ctg gta agt tcc agt cag tct agg gaa caa tta cag ttg 288  
 Gln Thr Leu Leu Val Ser Ser Ser Gln Ser Arg Glu Gln Leu Gln Leu  
 85 90 95

cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc 336  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110

cgt gca ctg ggt gcc caa aaa gaa gct atc tgc ccg cct gac gcg gcc 384  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125

tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg 432  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140

ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa gtt tat acg 480  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Val Tyr Thr  
 145 150 155 160

ggg gag gct tgt cgc tga 498  
 Gly Glu Ala Cys Arg \*  
 165

<210> 206  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 206  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu  
 1 5 10 15  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys  
 20 25 30  
 Ala Glu His Cys Ser Leu Asn Glu Ser Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 Val Asn Leu Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val  
 50 55 60  
 Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly  
 65 70 75 80  
 Gln Thr Leu Leu Val Ser Ser Ser Gln Ser Arg Glu Gln Leu Gln Leu  
 85 90 95  
 His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu  
 100 105 110  
 Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala  
 115 120 125  
 Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu  
 130 135 140  
 Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Val Tyr Thr  
 145 150 155 160  
 Gly Glu Ala Cys Arg  
 165

<210> 207  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 207  
 atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gta 48  
 Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Val  
 1 5 10 15  
 aga tac ctg ctc gaa gcg aaa gag gct gaa att atc acc aca ggc tgt 96  
 Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ile Ile Thr Thr Gly Cys  
 20 25 30  
 gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa 144  
 Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
 35 40 45  
 gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg 192

|   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Val   | Asn | Phe | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |  |  |
| 50  |     |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |  |  |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tgc gag gca gtc ctg cgg ggt 240 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Glu   | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |  |  |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |  |  |
| caa act tta ctg gta aat tcc agt cag cct tgg gaa cca tta cag ttg 288 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Gln   | Thr | Leu | Leu | Val | Asn | Ser | Ser | Gln | Pro | Trp | Glu | Pro | Leu | Gln | Leu |  |  |
|   |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |  |  |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc 336 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| His   | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |  |  |
|   |     |     | 100 |     |     |     | 105 |     |     |     |     |     | 110 |     |     |  |  |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tgc ccg cct gac gcg gcc 384 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Arg   | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |  |  |
|   |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |  |  |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg 432 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Ser   | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |  |  |
|   |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |  |  |
| ttt cgc gtc tac gcc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg 480 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Phe   | Arg | Val | Tyr | Ala | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Leu | Tyr | Thr |  |  |
| 145   |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |  |  |
| ggg gag gct tgt cgc tga 498   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Gly   | Glu | Ala | Cys | Arg | *   |     |     |     |     |     |     |     |     |     |     |  |  |
|   |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |     |  |  |

<210> 208  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 208

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Val |  |  |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |  |  |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Ile | Ile | Thr | Thr | Gly | Cys |  |  |
|     |     | 20  |     |     |     | 25  |     |     |     |     |     |     | 30  |     |     |  |  |
| Ala | Glu | His | Cys | Ser | Leu | Asn | Glu | Asn | Ile | Thr | Val | Pro | Asp | Thr | Lys |  |  |
|     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |  |  |
| Val | Asn | Phe | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |  |  |
| 50  |     |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |  |  |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |  |  |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |  |  |
| Gln | Thr | Leu | Leu | Val | Asn | Ser | Ser | Gln | Pro | Trp | Glu | Pro | Leu | Gln | Leu |  |  |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |  |  |
| His | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |  |  |
|     |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |     |  |  |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |  |  |
|     |     | 115 |     |     |     | 120 |     |     |     |     |     | 125 |     |     |     |  |  |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |  |  |

|                         |                     |                     |  |     |  |
|-------------------------|---------------------|---------------------|--|-----|--|
| 130                     |                     | 135                 |  | 140 |  |
| Phe Arg Val Tyr Ala Asn | Phe Leu Arg Gly Lys | Leu Lys Leu Tyr Thr |  |     |  |
| 145                     | 150                 | 155                 |  | 160 |  |
| Gly Glu Ala Cys Arg     |                     |                     |  |     |  |
|                         | 165                 |                     |  |     |  |

<210> 209  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 209

|   |     |
|---|-----|
| atg gat atc gcc ccg ccc cgt ctg att tgc gac agc agg gtg cta gaa | 48  |
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |     |
| 1 5 10 15   |     |
|   |     |
| aga tac ctg ctc gaa gcg aaa gag gct gaa aat atc acc aca ggc tgt | 96  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys |     |
| 20 25 30  |     |
|   |     |
| gca gaa gat tgc tca ctg aac gag agt att act gta ccg gat tcg aaa | 144 |
| Ala Glu Asp Cys Ser Leu Asn Glu Ser Ile Thr Val Pro Asp Ser Lys |     |
| 35 40 45  |     |
|   |     |
| gtc aac tta tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Leu Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
|   |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tcg gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
|   |     |
| caa act tta ctg gta aat tcc agt cag cct ggg gaa caa tta cag ttg | 288 |
| Gln Thr Leu Leu Val Asn Ser Ser Gln Pro Gly Glu Gln Leu Gln Leu |     |
| 85 90 95  |     |
|   |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
|   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tcg ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
|   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
|   |     |
| ttt cgc gtc tac tcc aac ttc ttg cgt ggc aaa ctg aaa att tat acg | 480 |
| Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Ile Tyr Thr |     |

|                         |     |     |     |     |
|-------------------------|-----|-----|-----|-----|
| 145                     | 150 | 155 | 160 |     |
| ggt gag gct tgt cgc tga |     |     |     | 498 |
| Gly Glu Ala Cys Arg *   |     |     |     |     |
| 165                     |     |     |     |     |

<210> 210  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 210

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Asn | Ile | Thr | Thr | Gly | Cys |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |     |
| Ala | Glu | Asp | Cys | Ser | Leu | Asn | Glu | Ser | Ile | Thr | Val | Pro | Asp | Ser | Lys |
|     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Val | Asn | Leu | Tyr | Ala | Trp | Lys | Arg | Met | Glu | Val | Gly | Gln | Gln | Ala | Val |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |
| Gln | Thr | Leu | Leu | Val | Asn | Ser | Ser | Gln | Pro | Gly | Glu | Gln | Leu | Gln | Leu |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |
| His | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |
|     |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |     |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |
|     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |
|     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |     |
| Phe | Arg | Val | Tyr | Ser | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Ile | Tyr | Thr |
| 145 |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     | 160 |     |
| Gly | Glu | Ala | Cys | Arg |     |     |     |     |     |     |     |     |     |     |     |
|     |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |     |

<210> 211  
 <211> 498  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(498)

<400> 211

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| atg | gat | atc | gcc | ccg | ccc | cgt | ctg | att | tgc | gac | agc | agg | gtg | cta | gaa |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Met | Asp | Ile | Ala | Pro | Pro | Arg | Leu | Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| aga | tac | ctg | ctc | gaa | gcg | aaa | gag | gct | gaa | agt | atc | acc | aca | ggc | tgt |
| Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu | Ala | Glu | Ser | Ile | Thr | Thr | Gly | Cys |
|     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |     |

|   |     |
|---|-----|
| gca gaa cat tgc tca ctg aac gag aat att act gta ccg gat acg aaa | 144 |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |     |
| 35 40 45  |     |
| gtc aac ttt tat gcc tgg aaa cga atg gaa gtt gga caa cag gcg gtg | 192 |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |     |
| 50 55 60  |     |
| gaa gtt tgg cag ggg ctt gcc ctg ttg tgc gag gca gtc ctg cgg ggt | 240 |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |     |
| 65 70 75 80   |     |
| caa act tta ctg gta att tcc agt cag cct tgg gaa cca tta cag ttg | 288 |
| Gln Thr Leu Leu Val Ile Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |     |
| 85 90 95  |     |
| cac gtg gat aag gcg gtt tct ggc ctg cgc agc ctt acc acg ctg ctc | 336 |
| His Val Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu |     |
| 100 105 110   |     |
| cgt gca ctg ggt gcc caa aaa gaa gct atc tgc ccg cct gac gcg gcc | 384 |
| Arg Ala Leu Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala |     |
| 115 120 125   |     |
| tca gca gcg ccg tta cgc act att aca gcc gat acc ttc cgt aaa ctg | 432 |
| Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu |     |
| 130 135 140   |     |
| ttt cgc gtc tac ccc aac ttc ttg cgt ggc aaa ctg aaa ctt tat acg | 480 |
| Phe Arg Val Tyr Pro Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr |     |
| 145 150 155 160   |     |
| ggg gag gct tgt cgc tga   | 498 |
| Gly Glu Ala Cys Arg *   |     |
| 165   |     |

<210> 212  
 <211> 165  
 <212> PRT  
 <213> Homo sapiens

<400> 212

|   |  |
|---|--|
| Met Asp Ile Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu |  |
| 1 5 10 15   |  |
| Arg Tyr Leu Leu Glu Ala Lys Glu Ala Glu Ser Ile Thr Thr Gly Cys |  |
| 20 25 30  |  |
| Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys |  |
| 35 40 45  |  |
| Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val |  |
| 50 55 60  |  |
| Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly |  |
| 65 70 75 80   |  |
| Gln Thr Leu Leu Val Ile Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu |  |
| 85 90 95  |  |



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Val | Asp | Lys | Ala | Val | Ser | Gly | Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Phe | Arg | Val | Tyr | Pro | Asn | Phe | Leu | Arg | Gly | Lys | Leu | Lys | Leu | Tyr | Thr |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Gly | Glu | Ala | Cys | Arg |     |     |     |     |     |     |     |     |     |     |     |
|     |     |     |     | 165 |     |     |     |     |     |     |     |     |     |     |     |

<210> 213  
 <211> 1342  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (263)...(763)

<400> 213

|             |             |             |             |             |            |     |
|-------------|-------------|-------------|-------------|-------------|------------|-----|
| cccgagacg   | gaccggggcc  | accgcgccc   | ctctgctcc   | acaccgcgc   | ccctggacag | 60  |
| ccgccctctc  | ctccaggccc  | gtggggctgg  | ccctgcaccg  | ccgagcttcc  | cgggatgagg | 120 |
| gccccgggtg  | tggtcaccgc  | gcgcgcccc   | ggtcgctgag  | ggaccccggc  | caggcgcgga | 180 |
| gatgggggtg  | cacgaatgtc  | ctgcctggct  | gtggcttctc  | ctgtccctgc  | tgctgctccc | 240 |
| tctgggctc   | ccagtcttgg  | gc gcc cca  | cca cgc ctc | atc tgt gac | agc cga    | 292 |
|             |             | Ala Pro Pro | Arg Leu Ile | Cys Asp Ser | Arg        |     |
|             |             | 1           | 5           |             | 10         |     |
|             |             |             |             |             |            |     |
| gtc ctg gag | agg tac ctc | ttg gag gcc | aag gag gcc | gag aat atc | acg        | 340 |
| Val Leu Glu | Arg Tyr Leu | Leu Glu Ala | Lys Glu Ala | Glu Asn Ile | Thr        |     |
|             | 15          |             | 20          |             | 25         |     |
|             |             |             |             |             |            |     |
| acg ggc tgt | gct gaa cac | tgc agc ttg | aat gag aat | atc act gtc | cca        | 388 |
| Thr Gly Cys | Ala Glu His | Cys Ser Leu | Asn Glu Asn | Ile Thr Val | Pro        |     |
|             | 30          |             | 35          |             | 40         |     |
|             |             |             |             |             |            |     |
| gac acc aaa | gtt aat ttc | tat gcc tgg | aag agg atg | gag gtc ggg | cag        | 436 |
| Asp Thr Lys | Val Asn Phe | Tyr Ala Trp | Lys Arg Met | Glu Val Gly | Gln        |     |
|             | 45          |             | 50          |             | 55         |     |
|             |             |             |             |             |            |     |
| cag gcc gta | gaa gtc tgg | cag ggc ctg | gcc ctg ctg | tcg gaa gct | gtc        | 484 |
| Gln Ala Val | Glu Val Trp | Gln Gly Leu | Ala Leu Leu | Ser Glu Ala | Val        |     |
|             | 60          |             | 65          |             | 70         |     |
|             |             |             |             |             |            |     |
| ctg cgg ggc | cag gcc ctg | ttg gtc aac | tct tcc cag | ccg tgg gag | ccc        | 532 |
| Leu Arg Gly | Gln Ala Leu | Leu Val Asn | Ser Ser Gln | Pro Trp Glu | Pro        |     |
|             | 75          |             | 80          |             | 85         |     |
|             |             |             |             |             |            |     |
| ctg cag ctg | cat gtg gat | aaa gcc gtc | agt ggc ctt | cgc agc ctc | acc        | 580 |
| Leu Gln Leu | His Val Asp | Lys Ala Val | Ser Gly Leu | Arg Ser Leu | Thr        |     |
|             | 95          |             | 100         |             | 105        |     |
|             |             |             |             |             |            |     |
| act ctg ctt | cgg gct ctg | cga gcc cag | aag gaa gcc | atc tcc cct | cca        | 628 |

Thr Leu Leu Arg Ala Leu Arg Ala Gln Lys Glu Ala Ile Ser Pro Pro  
 110 115 120  
 gat gcg gcc tca gct gct cca ctc cga aca atc act gct gac act ttc 676  
 Asp Ala Ala Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe  
 125 130 135  
 cgc aaa ctc ttc cga gtc tac tcc aat ttc ctc cgg gga aag ctg aag 724  
 Arg Lys Leu Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys  
 140 145 150  
 ctg tac aca ggg gag gcc tgc agg aca ggg gac aga tga ccaggtgtgt 773  
 Leu Tyr Thr Gly Glu Ala Cys Arg Thr Gly Asp Arg \*  
 155 160 165  
 ccacctgggc atatccacca cctccctcac caacattgct tgtgccacac cctccccgc 833  
 cactcctgaa ccccgctcgag gggctctcag ctcagcgcca gcctgtccca tggacactcc 893  
 agtgccagca atgacatctc aggggccaga ggaactgtcc agagagcaac tctgagatct 953  
 aaggatgtca cagggccaac ttgaggggccc agagcaggaa gcattcagag agcagcttta 1013  
 aactcaggga cagagccatg ctgggaagac gcctgagctc actcggcacc ctgcaaaatt 1073  
 tgatgccagg acacgctttg gaggcgattt acctgttttc gcacctacca tcagggacag 1133  
 gatgacctgg agaacttagg tggcaagctg tgacttctcc aggtctcacg ggcattgggca 1193  
 ctcccttggg ggcaagagcc cccttgacac cgggggtggg ggaaccatga agacaggatg 1253  
 ggggctggcc tctggctctc atgggggtcca agttttgtgt attcttcaac ctcattgaca 1313  
 agaactgaaa ccaccaaaaa aaaaaaaaaa 1342  
 <210> 214  
 <211> 166  
 <212> PRT  
 <213> Homo sapiens  
 <400> 214  
 Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu Arg Tyr Leu  
 1 5 10 15  
 Leu Glu Ala Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys Ala Glu His  
 20 25 30  
 Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys Val Asn Phe  
 35 40 45  
 Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val Glu Val Trp  
 50 55 60  
 Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly Gln Ala Leu  
 65 70 75 80  
 Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu His Val Asp  
 85 90 95  
 Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu Arg Ala Leu  
 100 105 110  
 Arg Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala Ser Ala Ala  
 115 120 125  
 Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu Phe Arg Val  
 130 135 140  
 Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr Thr Gly Glu Ala  
 145 150 155 160  
 Cys Arg Thr Gly Asp Arg  
 165

<210> 215  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Primer

<400> 215  
 caggaattct gtttggaac tgtc 24

<210> 216  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Primer

<400> 216  
 actctcatcac catggaagct tgca 24

<210> 217  
 <211> 567  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(567)

<400> 217  
 atg ggc gtg cac gag tgc ccc gcc tgg ctg tgg ctg ctg ctg agc ctg 48  
 Met Gly Val His Glu Cys Pro Ala Trp Leu Trp Leu Leu Leu Ser Leu  
 1 5 10 15  
 ctg agc ctg ccc ctg ggc ctg ccc gtg ctg ggc gcc ccc ccc cgg ctg 96  
 Leu Ser Leu Pro Leu Gly Leu Pro Val Leu Gly Ala Pro Pro Arg Leu  
 20 25 30  
 atc tgc gac agc cgg gtg ctg gag cgg tac ctg ctg gag gcc aag gag 144  
 Ile Cys Asp Ser Arg Val Leu Glu Arg Tyr Leu Leu Glu Ala Lys Glu  
 35 40 45  
 gcc gag acc atc acc acc ggc tgc gtg gag gac tgc agc ctg aac gag 192  
 Ala Glu Thr Ile Thr Thr Gly Cys Val Glu Asp Cys Ser Leu Asn Glu  
 50 55 60  
 aac atc acc gtg ccc gac acc aag gtg aac ttc tac gcc cgg aag cgg 240  
 Asn Ile Thr Val Pro Asp Thr Lys Val Asn Phe Tyr Ala Arg Lys Arg  
 65 70 75 80  
 atg gag gtg ggc cag cag gcc gtg gag atc tgg cag ggc ctg gcc ctg 288  
 Met Glu Val Gly Gln Gln Ala Val Glu Ile Trp Gln Gly Leu Ala Leu

| 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| ctg | agc | gag | gcc | gtg | ctg | cgg | ggc | cag | acc | ctg | ctg | gtg | atc | agc | agc | 336 |
| Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly | Gln | Thr | Leu | Leu | Val | Ile | Ser | Ser |     |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |     |
| cag | ccc | tgg | gag | ccc | ctg | cag | ctg | cac | gtg | gac | aag | gcc | gtg | agc | ggc | 384 |
| Gln | Pro | Trp | Glu | Pro | Leu | Gln | Leu | His | Val | Asp | Lys | Ala | Val | Ser | Gly |     |
|     |     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| ctg | cgg | agc | ctg | acc | acc | ctg | ctg | cgg | gcc | ctg | ggc | gcc | cag | aag | gag | 432 |
| Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu | Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu |     |
|     |     |     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |
| gcc | atc | agc | ccc | ccc | gac | gcc | gcc | agc | gcc | gcc | ccc | ctg | cgg | acc | atc | 480 |
| Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala | Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| acc | gcc | gac | acc | ttc | cgg | aag | ctg | ttc | cgg | gtg | tac | agc | aac | ttc | ctg | 528 |
| Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu | Phe | Arg | Val | Tyr | Ser | Asn | Phe | Leu |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| cgg | ggc | aag | ctg | aag | ctg | tac | acc | ggc | gag | gcc | tgc | cgg |     |     |     | 567 |
| Arg | Gly | Lys | Leu | Lys | Leu | Tyr | Thr | Gly | Glu | Ala | Cys | Arg |     |     |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

<210> 218  
 <211> 189  
 <212> PRT  
 <213> Homo sapiens

<400> 218

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Gly | Val | His | Glu | Cys | Pro | Ala | Trp | Leu | Trp | Leu | Leu | Leu | Ser | Leu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Leu | Ser | Leu | Pro | Leu | Gly | Leu | Pro | Val | Leu | Gly | Ala | Pro | Pro | Arg | Leu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu | Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Ala | Glu | Thr | Ile | Thr | Thr | Gly | Cys | Val | Glu | Asp | Cys | Ser | Leu | Asn | Glu |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Asn | Ile | Thr | Val | Pro | Asp | Thr | Lys | Val | Asn | Phe | Tyr | Ala | Arg | Lys | Arg |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |
| Met | Glu | Val | Gly | Gln | Gln | Ala | Val | Glu | Ile | Trp | Gln | Gly | Leu | Ala | Leu |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     | 95  |     |     |
| Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly | Gln | Thr | Leu | Leu | Val | Ile | Ser | Ser |
|     |     |     | 100 |     |     |     | 105 |     |     |     |     |     | 110 |     |     |
| Gln | Pro | Trp | Glu | Pro | Leu | Gln | Leu | His | Val | Asp | Lys | Ala | Val | Ser | Gly |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu | Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala | Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile |
| 145 |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     | 160 |     |
| Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu | Phe | Arg | Val | Tyr | Ser | Asn | Phe | Leu |
|     |     |     |     | 165 |     |     |     | 170 |     |     |     |     |     | 175 |     |

Arg Gly Lys Leu Lys Leu Tyr Thr Gly Glu Ala Cys Arg  
 180 185

<210> 219  
 <211> 567  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(567)

<400> 219  
 atg ggc gtg cac gag tgc ccc gcc tgg ctg tgg ctg ctg ctg agc ctg 48  
 Met Gly Val His Glu Cys Pro Ala Trp Leu Trp Leu Leu Leu Ser Leu  
 1 5 10 15

ctg agc ctg ccc ctg ggc ctg ccc gtg ctg ggc gcc ccc ccc cgg ctg 96  
 Leu Ser Leu Pro Leu Gly Leu Pro Val Leu Gly Ala Pro Pro Arg Leu  
 20 25 30

atc tgc gac agc cgg gtg ctg gag cgg tac ctg ctg gag gcc aag gag 144  
 Ile Cys Asp Ser Arg Val Leu Glu Arg Tyr Leu Leu Glu Ala Lys Glu  
 35 40 45

gcc gag acc atc acc acc ggc tgc gtg gag gac tgc agc ctg aac gag 192  
 Ala Glu Thr Ile Thr Thr Gly Cys Val Glu Asp Cys Ser Leu Asn Glu  
 50 55 60

aac atc acc gtg ccc gac acc aag gtg aac ttc tac gcc cgg aag cgg 240  
 Asn Ile Thr Val Pro Asp Thr Lys Val Asn Phe Tyr Ala Arg Lys Arg  
 65 70 75 80

atg gag gtg ggc cag cag gcc gtg gag atc tgg cag ggc ctg gcc ctg 288  
 Met Glu Val Gly Gln Gln Ala Val Glu Ile Trp Gln Gly Leu Ala Leu  
 85 90 95

ctg agc gag gcc gtg ctg cgg ggc cag acc ctg ctg gtg atc agc agc 336  
 Leu Ser Glu Ala Val Leu Arg Gly Gln Thr Leu Leu Val Ile Ser Ser  
 100 105 110

cag gtg aac gag acc ctg cag ctg cac gtg gac aag gcc gtg agc ggc 384  
 Gln Val Asn Glu Thr Leu Gln Leu His Val Asp Lys Ala Val Ser Gly  
 115 120 125

ctg cgg agc ctg acc acc ctg ctg cgg gcc ctg ggc gcc cag aag gag 432  
 Leu Arg Ser Leu Thr Thr Leu Leu Arg Ala Leu Gly Ala Gln Lys Glu  
 130 135 140

gcc atc agc ccc ccc gac gcc gcc agc gcc gcc ccc ctg cgg acc atc 480  
 Ala Ile Ser Pro Pro Asp Ala Ala Ser Ala Ala Pro Leu Arg Thr Ile  
 145 150 155 160

acc gcc gac acc ttc cgg aag ctg ttc cgg gtg tac agc aac ttc ctg 528  
 Thr Ala Asp Thr Phe Arg Lys Leu Phe Arg Val Tyr Ser Asn Phe Leu

|   |     |     |     |
|---|-----|-----|-----|
| 165   | 170 | 175 |     |
| cgg ggc aag ctg aag ctg tac acc ggc gag gcc tgc cgg |     |     | 567 |
| Arg Gly Lys Leu Lys Leu Tyr Thr Gly Glu Ala Cys Arg |     |     |     |
| 180   | 185 |     |     |

<210> 220  
 <211> 189  
 <212> PRT  
 <213> Homo sapiens

<400> 220  
 Met Gly Val His Glu Cys Pro Ala Trp Leu Trp Leu Leu Leu Ser Leu  
 1 5 10 15  
 Leu Ser Leu Pro Leu Gly Leu Pro Val Leu Gly Ala Pro Pro Arg Leu  
 20 25 30  
 Ile Cys Asp Ser Arg Val Leu Glu Arg Tyr Leu Leu Glu Ala Lys Glu  
 35 40 45  
 Ala Glu Thr Ile Thr Thr Gly Cys Val Glu Asp Cys Ser Leu Asn Glu  
 50 55 60  
 Asn Ile Thr Val Pro Asp Thr Lys Val Asn Phe Tyr Ala Arg Lys Arg  
 65 70 75 80  
 Met Glu Val Gly Gln Gln Ala Val Glu Ile Trp Gln Gly Leu Ala Leu  
 85 90 95  
 Leu Ser Glu Ala Val Leu Arg Gly Gln Thr Leu Leu Val Ile Ser Ser  
 100 105 110  
 Gln Val Asn Glu Thr Leu Gln Leu His Val Asp Lys Ala Val Ser Gly  
 115 120 125  
 Leu Arg Ser Leu Thr Thr Leu Leu Arg Ala Leu Gly Ala Gln Lys Glu  
 130 135 140  
 Ala Ile Ser Pro Pro Asp Ala Ala Ser Ala Ala Pro Leu Arg Thr Ile  
 145 150 155 160  
 Thr Ala Asp Thr Phe Arg Lys Leu Phe Arg Val Tyr Ser Asn Phe Leu  
 165 170 175  
 Arg Gly Lys Leu Lys Leu Tyr Thr Gly Glu Ala Cys Arg  
 180 185

<210> 221  
 <211> 567  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(567)

|   |  |    |
|---|--|----|
| <400> 221   |  |    |
| atg ggc gtg cac gag tgc ccc gcc tgg ctg tgg ctg ctg ctg agc ctg |  | 48 |
| Met Gly Val His Glu Cys Pro Ala Trp Leu Trp Leu Leu Leu Ser Leu |  |    |
| 1 5 10 15   |  |    |
| ctg agc ctg ccc ctg ggc ctg ccc gtg ctg ggc gcc ccc ccc cgg ctg |  | 96 |
| Leu Ser Leu Pro Leu Gly Leu Pro Val Leu Gly Ala Pro Pro Arg Leu |  |    |
| 20 25 30  |  |    |

atc tgc gac agc cgg gtg ctg gag cgg tac ctg ctg gag gcc aag gag 144  
 Ile Cys Asp Ser Arg Val Leu Glu Arg Tyr Leu Leu Glu Ala Lys Glu  
 35 40 45  
  
 gcc gag agc atc acc acc ggc tgc gcc gag cac tgc agc ctg aac gag 192  
 Ala Glu Ser Ile Thr Thr Gly Cys Ala Glu His Cys Ser Leu Asn Glu  
 50 55 60  
  
 aac atc acc gtg ccc gac agc aag gtg aac atg tac gcc tgg aag cgg 240  
 Asn Ile Thr Val Pro Asp Ser Lys Val Asn Met Tyr Ala Trp Lys Arg  
 65 70 75 80  
  
 atg gag gtg ggc cag cag gcc gtg gag gtg tgg cag ggc ctg gcc ctg 288  
 Met Glu Val Gly Gln Gln Ala Val Glu Val Trp Gln Gly Leu Ala Leu  
 85 90 95  
  
 ctg agc gag gcc gtg ctg cgg ggc cag acc ctg ctg gtg aac agc agc 336  
 Leu Ser Glu Ala Val Leu Arg Gly Gln Thr Leu Leu Val Asn Ser Ser  
 100 105 110  
  
 cag ccc tgg gag ccc ctg cag ctg cac gtg gac aag gcc gtg agc ggc 384  
 Gln Pro Trp Glu Pro Leu Gln Leu His Val Asp Lys Ala Val Ser Gly  
 115 120 125  
  
 ctg cgg agc ctg acc acc ctg ctg cgg gcc ctg ggc gcc cag aag gag 432  
 Leu Arg Ser Leu Thr Thr Leu Leu Arg Ala Leu Gly Ala Gln Lys Glu  
 130 135 140  
  
 gcc atc agc ccc ccc gac gcc gcc agc gcc gcc ccc ctg cgg acc atc 480  
 Ala Ile Ser Pro Pro Asp Ala Ala Ser Ala Ala Pro Leu Arg Thr Ile  
 145 150 155 160  
  
 acc gcc gac acc ttc cgg aag ctg ttc cgg gtg tac agc aac ttc ctg 528  
 Thr Ala Asp Thr Phe Arg Lys Leu Phe Arg Val Tyr Ser Asn Phe Leu  
 165 170 175  
  
 cgg ggc aag ctg aag ctg tac acc ggc gag gcc tgc cgg 567  
 Arg Gly Lys Leu Lys Leu Tyr Thr Gly Glu Ala Cys Arg  
 180 185

<210> 222  
 <211> 189  
 <212> PRT  
 <213> Homo sapiens

<400> 222  
 Met Gly Val His Glu Cys Pro Ala Trp Leu Trp Leu Leu Leu Ser Leu  
 1 5 10 15  
 Leu Ser Leu Pro Leu Gly Leu Pro Val Leu Gly Ala Pro Pro Arg Leu  
 20 25 30  
 Ile Cys Asp Ser Arg Val Leu Glu Arg Tyr Leu Leu Glu Ala Lys Glu  
 35 40 45  
 Ala Glu Ser Ile Thr Thr Gly Cys Ala Glu His Cys Ser Leu Asn Glu

|   |     |     |
|---|-----|-----|
| 50  | 55  | 60  |
| Asn Ile Thr Val Pro Asp Ser Lys Val Asn Met Tyr Ala Trp Lys Arg |     |     |
| 65  | 70  | 75  |
| Met Glu Val Gly Gln Gln Ala Val Glu Val Trp Gln Gly Leu Ala Leu |     | 80  |
|   | 85  | 90  |
| Leu Ser Glu Ala Val Leu Arg Gly Gln Thr Leu Leu Val Asn Ser Ser |     | 95  |
|   | 100 | 105 |
| Gln Pro Trp Glu Pro Leu Gln Leu His Val Asp Lys Ala Val Ser Gly |     | 110 |
|   | 115 | 120 |
| Leu Arg Ser Leu Thr Thr Leu Leu Arg Ala Leu Gly Ala Gln Lys Glu |     | 125 |
|   | 130 | 135 |
| Ala Ile Ser Pro Pro Asp Ala Ala Ser Ala Ala Pro Leu Arg Thr Ile |     | 140 |
| 145   | 150 | 155 |
| Thr Ala Asp Thr Phe Arg Lys Leu Phe Arg Val Tyr Ser Asn Phe Leu |     | 160 |
|   | 165 | 170 |
| Arg Gly Lys Leu Lys Leu Tyr Thr Gly Glu Ala Cys Arg             |     | 175 |
|   | 180 | 185 |

<210> 223  
 <211> 567  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(567)

|   |     |
|---|-----|
| <400> 223   |     |
| atg ggc gtg cac gag tgc ccc gcc tgg ctg tgg ctg ctg ctg agc ctg | 48  |
| Met Gly Val His Glu Cys Pro Ala Trp Leu Trp Leu Leu Leu Ser Leu |     |
| 1 5 10 15   |     |
| ctg agc ctg ccc ctg ggc ctg ccc gtg ctg ggc gcc ccc ccc cgg ctg | 96  |
| Leu Ser Leu Pro Leu Gly Leu Pro Val Leu Gly Ala Pro Pro Arg Leu |     |
| 20 25 30  |     |
| atc tgc gac agc cgg gtg ctg gag cgg tac ctg ctg gag gcc aag gag | 144 |
| Ile Cys Asp Ser Arg Val Leu Glu Arg Tyr Leu Leu Glu Ala Lys Glu |     |
| 35 40 45  |     |
| gcc gag agc atc acc acc ggc tgc gcc gag cac tgc agc ctg aac gag | 192 |
| Ala Glu Ser Ile Thr Thr Gly Cys Ala Glu His Cys Ser Leu Asn Glu |     |
| 50 55 60  |     |
| aac atc acc gtg ccc gac agc aag gtg aac atg tac gcc tgg aag cgg | 240 |
| Asn Ile Thr Val Pro Asp Ser Lys Val Asn Met Tyr Ala Trp Lys Arg |     |
| 65 70 75 80   |     |
| atg gag gtg ggc cag cag gcc gtg gag gtg tgg cag ggc ctg gcc ctg | 288 |
| Met Glu Val Gly Gln Gln Ala Val Glu Val Trp Gln Gly Leu Ala Leu |     |
| 85 90 95  |     |
| ctg agc gag gcc gtg ctg cgg ggc cag acc ctg ctg gtg aac agc agc | 336 |
| Leu Ser Glu Ala Val Leu Arg Gly Gln Thr Leu Leu Val Asn Ser Ser |     |
| 100 105 110   |     |



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| cag | gtg | aac | gag | acc | ctg | cag | ctg | cac | gtg | gac | aag | gcc | gtg | agc | ggc | 384 |
| Gln | Val | Asn | Glu | Thr | Leu | Gln | Leu | His | Val | Asp | Lys | Ala | Val | Ser | Gly |     |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| ctg | cgg | agc | ctg | acc | acc | ctg | ctg | cgg | gcc | ctg | ggc | gcc | cag | aag | gag | 432 |
| Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu | Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu |     |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| gcc | atc | agc | ccc | ccc | gac | gcc | gcc | agc | gcc | gcc | ccc | ctg | cgg | acc | atc | 480 |
| Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala | Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile |     |
| 145 |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     | 160 |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| acc | gcc | gac | acc | ttc | cgg | aag | ctg | ttc | cgg | gtg | tac | agc | aac | ttc | ctg | 528 |
| Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu | Phe | Arg | Val | Tyr | Ser | Asn | Phe | Leu |     |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|-----|
| cgg | ggc | aag | ctg | aag | ctg | tac | acc | ggc | gag | gcc | tgc | cgg |  |  |  | 567 |
| Arg | Gly | Lys | Leu | Lys | Leu | Tyr | Thr | Gly | Glu | Ala | Cys | Arg |  |  |  |     |
|     |     | 180 |     |     |     |     | 185 |     |     |     |     |     |  |  |  |     |

<210> 224  
 <211> 189  
 <212> PRT  
 <213> Homo sapiens

|           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 224 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Met       | Gly | Val | His | Glu | Cys | Pro | Ala | Trp | Leu | Trp | Leu | Leu | Leu | Ser | Leu |
| 1         |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |
| Leu       | Ser | Leu | Pro | Leu | Gly | Leu | Pro | Val | Leu | Gly | Ala | Pro | Pro | Arg | Leu |
|           |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |     |     |
| Ile       | Cys | Asp | Ser | Arg | Val | Leu | Glu | Arg | Tyr | Leu | Leu | Glu | Ala | Lys | Glu |
|           |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |
| Ala       | Glu | Ser | Ile | Thr | Thr | Gly | Cys | Ala | Glu | His | Cys | Ser | Leu | Asn | Glu |
|           | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |
| Asn       | Ile | Thr | Val | Pro | Asp | Ser | Lys | Val | Asn | Met | Tyr | Ala | Trp | Lys | Arg |
| 65        |     |     |     | 70  |     |     |     | 75  |     |     |     |     |     | 80  |     |
| Met       | Glu | Val | Gly | Gln | Gln | Ala | Val | Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu |
|           |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |     |
| Leu       | Ser | Glu | Ala | Val | Leu | Arg | Gly | Gln | Thr | Leu | Leu | Val | Asn | Ser | Ser |
|           |     |     | 100 |     |     |     | 105 |     |     |     |     | 110 |     |     |     |
| Gln       | Val | Asn | Glu | Thr | Leu | Gln | Leu | His | Val | Asp | Lys | Ala | Val | Ser | Gly |
|           |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |
| Leu       | Arg | Ser | Leu | Thr | Thr | Leu | Leu | Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu |
|           | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Ala       | Ile | Ser | Pro | Pro | Asp | Ala | Ala | Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile |
| 145       |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     | 160 |     |
| Thr       | Ala | Asp | Thr | Phe | Arg | Lys | Leu | Phe | Arg | Val | Tyr | Ser | Asn | Phe | Leu |
|           |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |     |
| Arg       | Gly | Lys | Leu | Lys | Leu | Tyr | Thr | Gly | Glu | Ala | Cys | Arg |     |     |     |
|           |     | 180 |     |     |     |     | 185 |     |     |     |     |     |     |     |     |

<210> 225  
 <211> 81

<212> DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222> (1)...(81)

<400> 225  
atg ggc gtg cac gag tgc ccc gcc tgg ctg tgg ctg ctg ctg agc ctg 48  
Met Gly Val His Glu Cys Pro Ala Trp Leu Trp Leu Leu Leu Ser Leu  
1 5 10 15  
  
ctg agc ctg ccc ctg ggc ctg ccc gtg ctg ggc 81  
Leu Ser Leu Pro Leu Gly Leu Pro Val Leu Gly  
20 25

<210> 226  
<211> 27  
<212> PRT  
<213> Homo sapiens

<400> 226  
Met Gly Val His Glu Cys Pro Ala Trp Leu Trp Leu Leu Leu Ser Leu  
1 5 10 15  
Leu Ser Leu Pro Leu Gly Leu Pro Val Leu Gly  
20 25